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#### ENVIRONMENT

Subject:  
2019 Semi-Annual Groundwater Monitoring Report  
RACER Lansing - Plants 2, 3 and 6  
Lansing, Michigan

Date:  
October 14, 2019

Contact:  
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Our ref:  
30006870

Dear Ms. Matlock:

Arcadis of Michigan, LLC (Arcadis) completed the first and second quarter 2019 gauging and groundwater monitoring activities as part of the on-going Resource Conservation and Recovery Act (RCRA) Corrective Action on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust at Lansing Plants 2,3 and 6 (Site).

The first quarter 2019 event included:

- Gauging of light nonaqueous phase liquid (LNAPL) wells;
- LNAPL recovery; and
- Quarterly groundwater sampling and gauging activities at select monitoring wells.

The second quarter 2019 event included:

- Gauging of LNAPL wells;
- LNAPL recovery; and
- Site-wide annual groundwater sampling and gauging activities at monitoring wells.

All groundwater monitoring activities were completed in accordance with the Revised Interim Groundwater Monitoring Work Plan (IGMP) (Arcadis 2017), approved by the Michigan Department of Environment, Great Lakes, and Energy

(EGLE), formerly MDEQ, on February 8, 2017. Deviations from the approved sampling plan include the following:

- Monitoring well MW-03-08 was inaccessible due to a substantial amount of standing water in the area during the second quarter 2019 sampling event. Another attempt to gauge and sample this well will be made during the fourth quarter 2019 sampling event.
- Monitoring well MW-18-96 was dry during the second quarter 2019 sampling event. Another attempt to gauge and sample this well will be made during the fourth quarter 2019 sampling event.
- Monitoring well P2-MW-04 was unable to be located for sample collection during the second quarter 2019 sampling event; it is believed to have been buried during construction activities related to the Consumers Energy gas main.

Monitoring well locations for Plants 2, 3, and 6 are included on **Figures 1 through 5**.

## SITE ACTIVITIES

During the first quarter 2019 sampling event, completed February 25 – March 1, 2019, groundwater elevations were collected from a total of 31 wells, including 19 LNAPL monitoring wells. Groundwater elevations collected are summarized on **Table 1**. Groundwater samples were collected from a total of 12 monitoring wells during the first quarter sampling event. During the second quarter sampling event, completed June 3-13, 2019, groundwater elevations were collected from a total of 132 wells, LNAPL gauging was completed at a total of 30 wells, and a total of 117 wells were sampled.

Monthly LNAPL gauging and recovery from selected wells was completed on January 15, February 22, March 1, April 15, and June 7. LNAPL gauging and recovery were completed in accordance with the 2015 LNAPL Removal Work Plan, as revised in the 2017 Annual Groundwater Monitoring Report, except for the January and February 2019 gauging events. LNAPL recovery was not completed during January or February in order to facilitate LNAPL sample collection described in the 2019 Racer Lansing Plant 2 LNAPL – PFAS Memorandum (Arcadis 2019a). LNAPL thicknesses are summarized on **Table 2**.

## Groundwater Sampling

During the first and second quarter sampling events, a total of 24 and 120 monitoring wells, respectively, were sampled and analyzed for one or more of the following parameters:

- Target compound list (TCL) volatile organic compounds (VOCs) using USEPA Method SW8260B.
- 1,4-Dioxane using Method SW8260B-SIM.
- Metals including arsenic, nickel, lead, vanadium, chromium, and copper - using Method SW6020A. Samples were submitted for dissolved and total metals analysis if turbidity could not be stabilized below 10 nephelometric turbidity units (NTUs).
- Per- and poly-fluorinated alkyl substances (PFAS) using USEPA Method 537 modified with isotope dilution (DoD QSM 5.1).

Groundwater samples were collected in a manner consistent with the low-flow sampling techniques outlined in the EGLE approved Arcadis Field Sampling Plan (FSP) (Arcadis 2011) and generally consistent with EGLE's Remediation and Redevelopment Division (RRD) Op Memo 2, Attachment 5. Except for samples collected for PFAS analysis, samples were submitted under chain of custody protocol to Merit Laboratories (Merit) located in Lansing, Michigan. Samples collected for PFAS analysis were submitted to SGS Accutest Laboratory located in Orlando, Florida and analyzed for the 24 PFAS contained in the draft EGLE PFAS Minimum Laboratory Analyte List (EGLE, 2018) using modified USEPA Method 537. Groundwater analytical results are summarized on **Table 4**. Groundwater low-flow sampling logs are included as **Appendix A**. Laboratory analytical reports and data validation reports will be included in the 2018 Annual Groundwater Monitoring Report.

## RESULTS

First quarter groundwater activities were limited to quarterly sampling of three weathered bedrock wells. Results of the first quarter 2019 quarterly event and second quarter 2019 event, are generally consistent with previous groundwater sampling events. Results of site activities completed during the first and second quarters are summarized in the following sections.

### LNAPL Gauging and Recovery

LNAPL thicknesses were generally consistent with previous observations, except for wells where LNAPL accumulation does not reach equilibrium between monthly LNAPL recovery events. LNAPL thicknesses are provided in **Table 2** and a summary of the LNAPL removed from the wells is included as **Table 3**.

Approximately 21.7 gallons of total liquid, consisting primarily of LNAPL, have been recovered from the wells in 2019 year-to-date. With monthly LNAPL recovery there has been a general decrease in the thickness of accumulated LNAPL between recovery events at four of the five LNAPL recovery wells. In accordance with the revisions in the 2019 IGMP Matrix (Arcadis 2019f) approved by EGLE on August 14, 2019, LNAPL recovery will be eliminated and LNAPL gauging will occur on a semi-annual basis.

### Groundwater Analytical Results

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

- 1,4-Dioxane results are consistent with the results summarized in the 2018 Annual Groundwater Monitoring Report (Arcadis 2019b). During 2018, detections of 1,4-dioxane in monitoring wells MW-16-74, MW-16-75, and MW-16-77, situated at the toe of the lower 1,4-dioxane plume indicated continued expansion at the toe. Second quarter 2019 monitoring results show no detections of 1,4-dioxane in MW-16-74 and MW-16-75. A 1,4-dioxane concentration of 2 µg/L was detected in MW-16-77. Arcadis will continue to monitor the toe of the lower 1,4-dioxane plume and update the plume stability assessment as part of the 2019 Annual Groundwater Monitoring Report.

- VOCs exceeding DW Criteria in at least one monitoring well during this event include vinyl chloride and 1,4-dioxane, with sporadic exceedances of bromomethane, benzene, ethylbenzene, xylene, 1,1-Dichloroethene, and 1,2,4-Trimethylbenzene. This is consistent with previous groundwater investigation and monitoring results.
- Metals exceeding DW Criteria in at least one monitoring well during this event include arsenic, nickel, hexavalent chromium, and vanadium. The metals results are consistent with previous sampling events.
- PFOS and PFOA concentrations exceeded DW Criteria at 14 perched monitoring wells the second quarter 2019 groundwater monitoring event (**Figure 5**). Overall, the PFAS results are consistent with those found in the 2018 Plant 3 PFAS summary report, the 2018 Plants 2 and 6 PFAS MW sampling memo, and the 2019 PFAS addendum (Arcadis 2018a, 2018b, 2019e). Additional delineation wells were installed at Plant 3 in August 2019. Results from these wells will be summarized under separate cover.
- PFOS concentrations at 17 perched monitoring wells exceeded GSI criteria during the second quarter 2019 groundwater monitoring event (**Figure 5**).
- 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 EGLE Recommended PFAS Analyte List. Specific results for other PFAS are summarized on **Table 4**. In general, other PFAS concentrations appear to correlate to PFOS and PFOA concentrations and decrease with distance from PFOS and PFOA source areas. Four of the additional analytes are under consideration by EGLE for future regulations including perfluorobutanesulfonic acid (PFBS), perfluorohexanoic acid (PFHxA), perfluorohexanesulfonic acid (PFHxS), and perfluorononanoic acid (PFNA).
  - o Sporadic low detections of PFBS and PFHxA observed in monitoring wells during the second quarter groundwater monitoring event are below the Michigan PFAS Action Response Team (MPART) Science Advisory Workgroup (SAWG) recommended health-based values of 420 ng/L for PFBS and 400,000 ng/L for PFHxA.
  - o The only detection of PFHxS to exceed the SAWG recommended health-based value of 51 ng/L was a concentration of 2,200 ng/L in Plant 3 source area monitoring well CH-14-RO.
  - o Concentrations of PFNA exceed the SAWG recommended health-based value of 6 ng/L at three monitoring wells located on Plant 6, one monitoring well on Plant 2, and one monitoring well on Plant 3. The highest concentration of PFNA was 163 ng/L observed in Plant 6 source area well P6-SB-07. Other exceedances ranged from 6.94 ng/L to 13.9 ng/L.

There were several detections of contaminants of concern (COCs) observed in the perched zone or weathered bedrock near the property boundary. These detections and one or more explanations for their occurrence are summarized below:

- MW-18-88 and MW-18-95, perched monitoring wells located along the eastern boundary of Plant 3, contained PFOS concentrations of 74.6 ng/L and 105 ng/L respectively, exceeding the GSI criterion of 12 ng/L. Additionally, combined concentrations of PFOS and PFOA were detected in MW-18-88 at



78.4 ng/L and in MW-18-95 at 116 ng/L (located along the east Plant 3 boundary), exceeding the DW criteria of 70 ng/L. Five perched monitoring wells installed as sentinels in the City of Lansing's Dunneback and Westside Parks, to the east Plant 3, are either non-detect or below the DW criteria for PFOS and PFOA.

- MW-18-104 and MW-18-106, off-site perched monitoring wells located to the east of Plant 3 contain concentrations of PFOS (16.7 and 13.8 ng/L respectively) which exceed the GSI criterion of 12 ng/L. The result for MW-18-106 is consistent with previous results summarized in the 2019 Plant 3 PFAS Addendum (Arcadis 2019e). PFOS was previously detected in MW-18-104 at an estimated concentration of 2.5 ng/L, below the GSI criterion.
- MW-12-12 and MW-13-36R, located along the eastern boundary of Plant 6, contained concentrations of PFOS and PFOA which exceed the combined DW criteria of 70 ng/L as well as PFOS concentrations exceeding the GSI criterion of 12 ng/L. MW-14-67, another monitoring well located along the eastern boundary of Plant 6 contained PFOS at a concentration of 12.2 ng/L, exceeding GSI. The results of offsite vertical aquifer profiling (VAP) samples completed to delineate impacts at the property boundary, are summarized in the 2019 Plant 6 PFAS Investigations Phase I Memo and 2019 Plant 6 Phase 2 PFAS Investigation Memo (Arcadis 2019c, 2019d).
- *MW-14-56.* 1,4-Dioxane was detected in this weathered bedrock well, located near the western Plant 2 property boundary, at a concentration of 10 µg/L during June 2019, exceeding the DW criteria of 7.2 µg/L. This result is consistent with previous concentrations observed in MW-14-56. As discussed with EGLE on January 2016, results along W. Genesee Street suggest that this detection could be related to a deeper 1,4-dioxane impact associated with the APC Site.
- *MW-14-58.* The concentration of 1,4-dioxane in MW-14-58, located in the perched zone was 59 µg/L during the monitoring period, consistent with previous analytical results. As previously reported, the detections of 1,4-dioxane at this location could be associated in part with the perched plume at Plant 2 but are likely commingled with the perched groundwater plume at the former Adams Plating Company Site (APC Site). Possible commingling of impacts from the Site and the APC Site complicates further delineation to the west.
- *MW-15-73.* 1,4-Dioxane was detected in this weathered bedrock well, located along the western property boundary of Plant 2, at a concentration of 9 µg/L during the second quarter 2019 event. This result is consistent with 2018 concentrations which ranged from 4 to 11 µg/L. Well MW-15-73 was installed as a replacement well for MW-13-42 and is near the APC Site. Borings further west along W. Genesee Street suggest greater concentrations likely associated with the APC Site. This well will continue to be monitored semiannually.
- *MW-16-80.* 1,4-Dioxane was detected in this weathered bedrock well, located at the western Plant 2 property boundary, at a concentration of 23 µg/L during June 2019, consistent with previous analytical results. Monitoring well MW-16-80 is located across the street from the APC Site, and the detected 1,4-dioxane is potentially related to former operations at the APC Site. This well will continue to be monitored semiannually.

- **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 2014, 2015a, 2015b).
- **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.
- **MWBP-10-UST5-6.** Arsenic was detected in this interbedded zone well, 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.

## CONCLUSIONS

The first quarter and second quarter 2019 monitoring results do not suggest significant changes to the Site groundwater conditions. Monitoring will continue during the third and fourth quarters of 2019 per the approved revised Interim Groundwater Monitoring Plan matrix (Arcadis 2019f). The 2019 revised IGMP will be provided to the EGLE in fourth quarter 2019. The 2019 Annual Groundwater Monitoring Report will be prepared following the fourth quarter sampling event and will include a summary of all 2019 groundwater monitoring activities, validated analytical reports, updated groundwater elevation contour figures, and an updated plume stability analysis.

If you should have any questions regarding the enclosed data, please do not hesitate to contact David Favero at [dfavero@racertrust.com](mailto:dfavero@racertrust.com) (734.879.9525) or Patrick Curry [patrick.curry@arcadis.com](mailto:patrick.curry@arcadis.com) (810.225.1926).

Sincerely,

Arcadis U.S., Inc.



Patrick J. Curry, P.G., C.P.G.  
Technical Expert - Geo

Copies:

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Angie Goodman, LBWL  
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David Love, Ingham County Drain Commission  
Brad Beck, Lansing Township  
Lansing Public Library

Enclosures:

**Tables**

- 1 Summary of Groundwater Elevations – January 2019 to June 2019
- 2 Summary of LNAPL Thickness – January 2019 to June 2019
- 3 Summary of LNAPL Recovery – January 2019 to June 2019
- 4 Summary of Groundwater Analytical Results – January 2019 to June 2019

**Figures**

- 1 1<sup>st</sup> and 2<sup>nd</sup> Quarter 2019 1,4-Dioxane Analytical Results
- 2 2<sup>nd</sup> Quarter 2019 VOCs Analytical Results
- 3 2<sup>nd</sup> Quarter 2019 Metals Analytical Results
- 4 2<sup>nd</sup> Quarter 2019 Combined PFOS & PFOA Analytical Results
- 5 2<sup>nd</sup> Quarter 2019 PFOS Analytical Results
- 6 2<sup>nd</sup> Quarter 2019 Summary of Other PFAS Compounds

**Appendices**

- A First and Second Quarter 2019 Groundwater Sampling Logs

## REFERENCES

- Arcadis. 2011. Field Sampling Plan. RACER Trust, Lansing, Michigan Plants 2, 3, and 6 Industrial Land. August 26.
- Arcadis. 2014. Memorandum, Re: Area 16 Metals Summary. RACER Trust Plant 3, Lansing, Michigan. June 24.
- Arcadis. 2015a. Memorandum, Re: Area 16 Soil Risk Evaluation. RACER Trust Plant 3, Lansing, Michigan. February 4.
- Arcadis. 2015b. Memorandum, Re: Area 16 Evaluation of Nickel in Groundwater. RACER Trust Plant 3, Lansing, Michigan. May 1.
- Arcadis. 2017. Revised Interim Groundwater Monitoring Workplan. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. January 30.
- Michigan Department of Environment, Great lakes, and Energy. 2018. Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Minimum Laboratory Analyte List. April 2018.
- Arcadis. 2018a. 2018 Plant 3 PFAS Investigation Summary Report. RACER Trust Plant 3, Lansing, Michigan. November 2.
- Arcadis. 2018b. 2018 Plants 2 and 6 PFAS Monitoring Well Sampling Memo. RACER Trust Plants 2 and 6, Lansing, Michigan. September 14.
- Arcadis. 2019a. 2019 Racer Lansing Plant 2 LNAPL-PFAS Memorandum, Lansing, Michigan. June 21.
- Arcadis. 2019b. 2018 Annual Groundwater Monitoring Report. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. May 14.
- Arcadis. 2019c. 2019 Plant 6 Phase I PFAS Investigations Memo. RACER Trust Plant 6, Lansing, Michigan. January 29.
- Arcadis. 2019d. 2019 Plant 6 Phase 2 PFAS Investigations Memo. RACER Trust Plant 6, Lansing, Michigan. August 23.
- Arcadis. 2019e. 2019 Plant 3 PFAS Addendum. RACER Trust Plant 3, Lansing, Michigan. July 24.
- Arcadis. 2019f. 2019 Interim Groundwater Monitoring Plan. RACER Trust Plants 2, 3, and 6, Lansing, Michigan. September 2019.

# TABLES



**Table 1**  
**Summary of Groundwater Elevations**  
**January 2019 to June 2019**  
**2019 Semi-Annual Groundwater Report**  
**RACER Trust Plants 2, 3, and 6 - Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (ft. bgs) | Screened Interval Bottom (ft. bgs) | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Groundwater Elevation (ft. above MSL) |
|----------------|----------------|---------------------------------|------------------------------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|---------------------------------------|
| <b>Plant 2</b> |                |                                 |                                    |                           |                                          |                                  |                                |                                       |
| AS-16-01       | 2/27/2019      | 72                              | 77                                 | 862.74                    | 862.13                                   | 75.20                            | 51.30                          | 811.44                                |
| AS-16-02       | 2/28/2019      | 73                              | 78                                 | 861.96                    | 862.17                                   | 76.10                            | 61.20                          | 800.76                                |
| LMW-12-03D     | 2/5/2019       | 17.3                            | 22.3                               | 864.99                    | 862.08                                   | NM                               | 14.60                          | 853.02*                               |
| LMW-12-03D     | 3/1/2019       | 17.3                            | 22.3                               | 864.99                    | 862.08                                   | NM                               | 14.02                          | 852.83*                               |
| LMW-12-03D     | 4/15/2019      | 17.3                            | 22.3                               | 864.99                    | 862.08                                   | NM                               | 13.94                          | 852.64*                               |
| LMW-12-03D     | 6/7/2019       | 17.3                            | 22.3                               | 863.94                    | 862.08                                   | NM                               | 13.75                          | 853.38*                               |
| LMW-12-08      | 2/5/2019       | 8                               | 13                                 | 864.40                    | 861.56                                   | NM                               | 11.05                          | 855.51*                               |
| LMW-12-08      | 3/1/2019       | 8                               | 13                                 | 864.40                    | 861.56                                   | NM                               | 10.43                          | 855.21*                               |
| LMW-12-08      | 4/15/2019      | 8                               | 13                                 | 864.40                    | 861.56                                   | NM                               | 10.79                          | 854.83*                               |
| LMW-12-08      | 6/7/2019       | 8                               | 13                                 | 863.94                    | 861.56                                   | NM                               | 8.99                           | 855.79*                               |
| LMW-14-12D     | 2/5/2019       | 18                              | 23                                 | 864.59                    | 862.11                                   | NM                               | 24.98                          | 852.65*                               |
| LMW-14-12D     | 3/1/2019       | 18                              | 23                                 | 864.59                    | 862.11                                   | NM                               | 23.01                          | 853.40*                               |
| LMW-14-12D     | 4/15/2019      | 18                              | 23                                 | 864.59                    | 862.11                                   | NM                               | 22.11                          | 853.34*                               |
| LMW-14-12D     | 6/7/2019       | 18                              | 23                                 | 863.94                    | 862.11                                   | NM                               | 25.00                          | 853.69*                               |
| LMW-14-13D     | 2/5/2019       | 17.5                            | 22.5                               | 865.03                    | 862.06                                   | 24.30                            | 11.42                          | 853.61                                |
| LMW-14-13D     | 3/1/2019       | 17.5                            | 22.5                               | 865.03                    | 862.06                                   | NM                               | 11.85                          | 853.18                                |
| LMW-14-13D     | 4/15/2019      | 17.5                            | 22.5                               | 865.03                    | 862.06                                   | NM                               | 11.08                          | 853.95                                |
| LMW-14-13D     | 6/7/2019       | 17.5                            | 22.5                               | 863.94                    | 862.06                                   | NM                               | 10.03                          | 853.91                                |
| LMW-14-14D     | 2/5/2019       | 18                              | 23                                 | 864.89                    | 861.90                                   | 24.95                            | 13.52                          | 851.37                                |
| LMW-14-14D     | 3/1/2019       | 18                              | 23                                 | 864.89                    | 861.90                                   | NM                               | 13.92                          | 850.97                                |
| LMW-14-14D     | 4/15/2019      | 18                              | 23                                 | 864.89                    | 861.90                                   | NM                               | 12.72                          | 852.17                                |
| LMW-14-14D     | 6/7/2019       | 18                              | 23                                 | 863.94                    | 861.90                                   | NM                               | 12.14                          | 851.80                                |
| LMW-14-15D     | 2/5/2019       | 18                              | 23                                 | 865.11                    | 861.66                                   | 22.65                            | 22.64                          | 852.72*                               |
| LMW-14-15D     | 3/1/2019       | 18                              | 23                                 | 865.11                    | 861.66                                   | NM                               | NM**                           | NM**                                  |
| LMW-14-15D     | 4/15/2019      | 18                              | 23                                 | 865.11                    | 861.66                                   | NM                               | 21.20                          | 851.28*                               |
| LMW-14-15D     | 6/7/2019       | 18                              | 23                                 | 863.94                    | 861.66                                   | 22.55                            | 22.55                          | 853.17*                               |
| LMW-15-16D     | 2/4/2019       | 19.5                            | 24.5                               | 865.20                    | 862.24                                   | NM                               | 23.08                          | 850.24*                               |
| LMW-15-16D     | 3/1/2019       | 19.5                            | 24.5                               | 865.20                    | 862.24                                   | NM                               | 22.91                          | 849.30*                               |
| LMW-15-16D     | 4/15/2019      | 19.5                            | 24.5                               | 865.20                    | 862.24                                   | NM                               | 22.35                          | 849.06*                               |
| LMW-15-16D     | 6/7/2019       | 19.5                            | 24.5                               | 863.94                    | 862.24                                   | NM                               | 25.10                          | 850.66*                               |
| MW-01(2)       | 6/3/2019       | 10                              | 20                                 | 875.79                    | 876.10                                   | 16.00                            | 6.73                           | 869.06                                |
| MW-12-01       | 6/25/2019      | 87                              | 110                                | 867.94                    | 865.46                                   | NM                               | 72.72                          | 795.22                                |
| MW-12-02       | 6/25/2019      | 87                              | 110                                | 853.91                    | 851.88                                   | NM                               | 64.13                          | 789.78                                |
| MW-12-05R      | 6/25/2019      | 100                             | 112                                | 864.79                    | 862.30                                   | NM                               | 72.15                          | 792.64                                |
| MW-12-06       | 6/25/2019      | 80.6                            | 99.5                               | 864.64                    | 861.69                                   | NM                               | 69.62                          | 795.02                                |
| MW-12-09       | 6/3/2019       | 14                              | 19                                 | 863.54                    | 860.63                                   | 21.60                            | 13.64                          | 849.90                                |
| MW-12-18       | 6/3/2019       | 28                              | 33                                 | 866.43                    | 864.19                                   | 34.85                            | 23.72                          | 842.71                                |
| MW-13-43       | 6/25/2019      | 72                              | 77                                 | 863.82                    | 860.97                                   | NM                               | 65.60                          | 798.22                                |
| MW-13-44       | 6/25/2019      | 96                              | 115                                | 864.24                    | 861.03                                   | NM                               | 73.82                          | 790.42                                |
| MW-13-45       | 6/3/2019       | 72                              | 77                                 | 863.94                    | 861.54                                   | 78.41                            | 65.65                          | 798.29                                |
| MW-14-54       | 6/3/2019       | 14                              | 19                                 | 865.21                    | 862.21                                   | 19.00                            | 13.47                          | 851.74                                |
| MW-14-55       | 6/3/2019       | 13                              | 18                                 | 864.17                    | 861.73                                   | 20.05                            | 17.38                          | 846.79                                |
| MW-14-56       | 6/3/2019       | 71                              | 76                                 | 863.27                    | 860.56                                   | 79.00                            | 66.27                          | 797.00                                |
| MW-14-57       | 6/3/2019       | 15                              | 20                                 | 863.97                    | 861.10                                   | 21.40                            | 13.22                          | 850.75                                |
| MW-14-58       | 6/3/2019       | 22                              | 27                                 | 863.94                    | 860.12                                   | 30.50                            | 13.92                          | 850.02                                |
| MW-14-59       | 6/3/2019       | 12                              | 17                                 | 863.94                    | 861.80                                   | 18.88                            | 7.11                           | 856.83                                |
| MW-14-60       | 6/3/2019       | 15                              | 20                                 | 864.65                    | 861.80                                   | 23.60                            | 12.25                          | 852.40                                |

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| Well ID   | Date Collected | Screened Interval Top (ft. bgs) | Screened Interval Bottom (ft. bgs) | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Groundwater Elevation (ft. above MSL) |
|-----------|----------------|---------------------------------|------------------------------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|---------------------------------------|
| MW-14-61  | 6/25/2019      | 70                              | 75                                 | 865.51                    | 862.30                                   | NM                               | 66.00                          | 799.51                                |
| MW-14-62  | 6/3/2019       | 12                              | 17                                 | 865.17                    | 862.25                                   | 19.60                            | 5.38                           | 859.79                                |
| MW-14-63  | 6/25/2019      | 68                              | 73                                 | 854.64                    | 851.68                                   | NM                               | 63.50                          | 791.14                                |
| MW-15-72  | 2/27/2019      | 63                              | 68                                 | 865.09                    | 862.35                                   | 70.35                            | 57.82                          | 807.27                                |
| MW-15-72  | 6/25/2019      | 63                              | 68                                 | 865.09                    | 862.35                                   | NM                               | 58.15                          | 806.94                                |
| MW-15-73  | 6/3/2019       | 78                              | 83                                 | 863.94                    | 859.12                                   | 81.42                            | 68.21                          | 795.73                                |
| MW-16-74  | 6/3/2019       | 66                              | 71                                 | 864.81                    | 862.10                                   | 73.70                            | 65.23                          | 799.58                                |
| MW-16-75  | 2/27/2019      | 66                              | 71                                 | 864.87                    | 862.13                                   | 74.05                            | 59.79                          | 805.08                                |
| MW-16-75  | 6/3/2019       | 66                              | 71                                 | 864.87                    | 862.13                                   | 74.10                            | 61.75                          | 803.12                                |
| MW-16-76  | 6/3/2019       | 70                              | 75                                 | 867.76                    | 865.12                                   | 82.15                            | 64.15                          | 803.61                                |
| MW-16-77  | 2/27/2019      | 66                              | 71                                 | 866.17                    | 863.42                                   | 73.95                            | 59.46                          | 806.71                                |
| MW-16-77  | 6/3/2019       | 66                              | 71                                 | 866.17                    | 863.42                                   | 74.00                            | 60.65                          | 805.52                                |
| MW-16-78  | 6/3/2019       | 68                              | 73                                 | 864.98                    | 862.09                                   | 76.70                            | 63.21                          | 801.77                                |
| MW-16-79  | 6/3/2019       | 68                              | 73                                 | 864.80                    | 862.07                                   | 75.70                            | 64.99                          | 799.81                                |
| MW-16-80  | 6/3/2019       | 68                              | 73                                 | 863.94                    | 853.41                                   | 74.20                            | 60.75                          | 803.19                                |
| MW-16-81  | 6/3/2019       | 70                              | 75                                 | 864.68                    | 862.04                                   | 77.30                            | 64.96                          | 799.72                                |
| MW-16-82  | 2/26/2019      | 70                              | 75                                 | 864.79                    | 862.10                                   | 77.30                            | 64.74                          | 800.05                                |
| MW-16-82  | 2/26/2019      | 70                              | 75                                 | 864.79                    | 862.10                                   | 77.15                            | 65.06                          | 799.73                                |
| MW-16-83  | 6/3/2019       | 71                              | 76                                 | 863.94                    | 860.17                                   | 80.00                            | 68.75                          | 795.19                                |
| MW-16-84  | 2/26/2019      | 72                              | 77                                 | 864.09                    | 861.81                                   | 81.15                            | 65.88                          | 798.21                                |
| MW-16-84  | 6/3/2019       | 72                              | 77                                 | 863.94                    | 861.81                                   | 82.44                            | 68.00                          | 795.94                                |
| MW-16-85  | 6/3/2019       | 74                              | 79                                 | 863.94                    | 861.87                                   | 83.41                            | 69.61                          | 794.33                                |
| MW-17-86  | 6/3/2019       | 73                              | 78                                 | 864.55                    | 861.92                                   | 81.45                            | 65.33                          | 799.22                                |
| MW-17-87  | 6/25/2019      | 100                             | 112                                | 862.82                    | 860.44                                   | NM                               | 69.58                          | 793.24                                |
| MW-19-109 | 6/3/2019       | NM                              | NM                                 | NM                        | NM                                       | 86.80                            | 68.90                          | NM                                    |
| P2-SB-20  | 6/3/2019       | 8                               | 13                                 | 863.94                    | 861.12                                   | 16.30                            | 8.65                           | 855.29                                |
| P2-SB-37  | 2/4/2019       | 5                               | 10                                 | 865.90                    | 861.90                                   | NM                               | 8.92                           | 858.64*                               |
| P2-SB-37  | 3/1/2019       | 5                               | 10                                 | 865.90                    | 861.90                                   | NM                               | 9.02                           | 858.21*                               |
| P2-SB-37  | 4/15/2019      | 5                               | 10                                 | 865.90                    | 861.90                                   | NM                               | 9.13                           | 858.05*                               |
| P2-SB-37  | 6/7/2019       | 5                               | 10                                 | 863.94                    | 861.90                                   | NM                               | 6.80                           | 857.64*                               |
| PMW-01    | 2/4/2019       | 2.59                            | 7.59                               | 860.85                    | 861.33                                   | NM                               | 5.70                           | 858.13*                               |
| PMW-01    | 3/1/2019       | 2.59                            | 7.59                               | 860.85                    | 861.33                                   | NM                               | 5.41                           | 857.92*                               |
| PMW-01    | 4/15/2019      | 2.59                            | 7.59                               | 860.85                    | 861.33                                   | NM                               | 5.02                           | 857.83*                               |
| PMW-01    | 6/7/2019       | 2.59                            | 7.59                               | 863.94                    | 861.33                                   | NM                               | 3.35                           | 862.26*                               |
| PMW-02    | 2/4/2019       | 2.59                            | 7.59                               | 860.94                    | 861.33                                   | NM                               | 1.12                           | 859.83*                               |
| PMW-02    | 3/1/2019       | 2.59                            | 7.59                               | 860.94                    | 861.33                                   | NM                               | 2.12                           | 858.82                                |
| PMW-02    | 4/15/2019      | 2.59                            | 7.59                               | 860.94                    | 861.33                                   | NM                               | 2.49                           | 858.49*                               |
| PMW-02    | 6/7/2019       | 2.59                            | 7.59                               | 863.94                    | 861.33                                   | NM                               | 0.83                           | 863.11*                               |
| PW-14-01  | 2/28/2019      | 71.6                            | 76.8                               | 864.97                    | 862.38                                   | 81.85                            | 61.80                          | 803.17                                |
| PW-14-01  | 6/3/2019       | 71.6                            | 76.8                               | 864.97                    | 862.38                                   | 81.90                            | 63.49                          | 801.48                                |
| PW-14-02  | 6/3/2019       | 75                              | 80                                 | 863.94                    | 860.93                                   | 93.83                            | 65.70                          | 798.24                                |
| TW-14-01  | 2/28/2019      | 70                              | 75                                 | 865.08                    | 862.27                                   | 78.00                            | 65.65                          | 799.43                                |
| TW-14-02  | 2/27/2019      | 67                              | 72                                 | 865.01                    | 862.13                                   | 74.15                            | 68.35                          | 796.66                                |
| TW-14-02  | 6/3/2019       | 67                              | 72                                 | 865.01                    | 862.13                                   | 74.00                            | 60.75                          | 804.26                                |
| TW-16-01  | 2/28/2019      | 73                              | 78                                 | 861.81                    | 862.16                                   | 77.80                            | 62.90                          | 798.91                                |



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**RACER Trust Plants 2, 3, and 6 - Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (ft. bgs) | Screened Interval Bottom (ft. bgs) | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Groundwater Elevation (ft. above MSL) |
|----------------|----------------|---------------------------------|------------------------------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|---------------------------------------|
| <b>Plant 3</b> |                |                                 |                                    |                           |                                          |                                  |                                |                                       |
| CH-14-RO       | 6/3/2019       | 7                               | 12                                 | 866.44                    | 863.68                                   | 14.88                            | 6.10                           | 860.34                                |
| LMW-12-09      | 6/3/2019       | 3                               | 8                                  | 863.22                    | 860.40                                   | 10.77                            | 3.80                           | 859.42                                |
| LMW-12-10      | 6/3/2019       | 14                              | 19                                 | 866.82                    | 863.60                                   | NM                               | 12.16                          | 856.27*                               |
| LMW-12-11      | 6/3/2019       | 15                              | 20                                 | 866.53                    | 863.53                                   | 22.86                            | 11.22                          | 855.31                                |
| MW-02-01(3)    | 6/25/2019      | 59                              | 69                                 | 863.94                    | 863.35                                   | NM                               | 53.42                          | 810.52                                |
| MW-02-02(3)    | 6/25/2019      | 74                              | 84                                 | 862.70                    | 863.11                                   | NM                               | 61.40                          | 801.30                                |
| MW-02-04(3)    | 6/25/2019      | 76                              | 86                                 | 859.41                    | 859.96                                   | NM                               | 59.46                          | 799.95                                |
| MW-04-01(3)    | 6/25/2019      | 95                              | 105                                | 863.94                    | 862.93                                   | NM                               | 52.80                          | 811.14                                |
| MW-04-02(3)    | 6/25/2019      | 126                             | 136                                | 863.94                    | 861.26                                   | NM                               | 62.18                          | 801.76                                |
| MW-04-03(3)    | 6/25/2019      | 80                              | 90                                 | 863.94                    | 861.00                                   | NM                               | 60.70                          | 803.24                                |
| MW-04-04(3)    | 6/25/2019      | 72                              | 82                                 | 863.94                    | 856.11                                   | NM                               | 55.40                          | 808.54                                |
| MW-06(3)       | 6/3/2019       | 6.5                             | 11.5                               | 863.94                    | 859.79                                   | 1.40                             | 11.00                          | 852.94                                |
| MW-12-04       | 6/25/2019      | 77                              | 100                                | 863.94                    | 844.26                                   | NM                               | 46.80                          | 817.14                                |
| MW-12-20       | 6/25/2019      | 75                              | 80                                 | 863.94                    | 861.45                                   | NM                               | 63.88                          | 800.06                                |
| MW-12-21       | 6/25/2019      | 70                              | 75                                 | 864.50                    | 861.45                                   | NM                               | 63.70                          | 800.80                                |
| MW-13-22       | 6/25/2019      | 89                              | 94                                 | 864.37                    | 861.50                                   | NM                               | 65.15                          | 799.22                                |
| MW-13-23       | 6/25/2019      | 69                              | 74                                 | 864.31                    | 861.45                                   | NM                               | 65.82                          | 798.49                                |
| MW-13-24       | 6/25/2019      | 69                              | 74                                 | 864.35                    | 861.48                                   | NM                               | 62.78                          | 801.57                                |
| MW-13-25       | 6/25/2019      | 67                              | 72                                 | 863.77                    | 860.49                                   | NM                               | 65.71                          | 798.06                                |
| MW-13-26       | 6/25/2019      | 72                              | 77                                 | 863.94                    | 861.67                                   | NM                               | 62.61                          | 801.33                                |
| MW-13-27       | 6/25/2019      | 67                              | 72                                 | 863.94                    | 861.54                                   | NM                               | 66.45                          | 797.49                                |
| MW-13-28       | 6/25/2019      | 99                              | 115.5                              | 864.42                    | 861.61                                   | NM                               | 66.93                          | 797.49                                |
| MW-13-29       | 6/25/2019      | 68                              | 73                                 | 862.81                    | 859.81                                   | NM                               | 65.00                          | 797.81                                |
| MW-13-30       | 6/25/2019      | 72                              | 77                                 | 863.94                    | 861.66                                   | NM                               | 64.93                          | 799.01                                |
| MW-13-31       | 6/3/2019       | 5                               | 10                                 | 863.94                    | 858.36                                   | 12.70                            | 5.61                           | 858.33                                |
| MW-13-32       | 6/3/2019       | 5                               | 10                                 | 863.94                    | 857.32                                   | 12.60                            | 4.43                           | 859.51                                |
| MW-13-34       | 6/3/2019       | 74                              | 79                                 | 853.92                    | 851.82                                   | 79.85                            | 62.68                          | 791.24                                |
| MW-13-35       | 6/3/2019       | 25                              | 30                                 | 864.81                    | 865.23                                   | 29.45                            | 23.25                          | 841.56                                |
| MW-13-36R      | 6/3/2019       | 5.5                             | 10.5                               | 878.04                    | 875.28                                   | 12.69                            | 4.40                           | 873.64                                |
| MW-13-37       | 6/25/2019      | 97                              | 112                                | 863.94                    | 863.75                                   | NM                               | 68.17                          | 795.77                                |
| MW-13-38       | 6/3/2019       | 107                             | 124                                | 863.94                    | 863.71                                   | 132.50                           | 69.35                          | 794.59                                |
| MW-13-38       | 6/25/2019      | 107                             | 124                                | 863.94                    | 863.71                                   | NM                               | 68.95                          | 794.99                                |
| MW-13-39B      | 6/25/2019      | 97                              | 112                                | 863.94                    | 857.33                                   | NM                               | 62.35                          | 801.59                                |
| MW-13-40       | 6/25/2019      | 72                              | 77                                 | 863.94                    | 859.69                                   | NM                               | 58.52                          | 805.42                                |
| MW-13-41       | 6/25/2019      | 77                              | 82                                 | 863.94                    | 863.68                                   | NM                               | 60.94                          | 803.00                                |
| MW-13-46       | 6/25/2019      | 68                              | 73                                 | 854.54                    | 852.12                                   | 74.64                            | 60.83                          | 793.71                                |
| MW-13-47       | 6/25/2019      | 99                              | 119                                | 853.74                    | 851.89                                   | 113.68                           | 61.73                          | 792.01                                |
| MW-13-48       | 6/25/2019      | 65                              | 70                                 | 854.83                    | 852.17                                   | 73.08                            | 57.19                          | 797.64                                |
| MW-13-49       | 6/3/2019       | 73                              | 78                                 | 853.01                    | 850.55                                   | 81.65                            | 62.87                          | 790.14                                |
| MW-14-65       | 6/4/2019       | 5                               | 10                                 | 866.34                    | 863.71                                   | 13.27                            | 6.22                           | 860.12                                |
| MW-15-71       | 6/3/2019       | 110                             | 115                                | 864.56                    | 861.58                                   | 118.25                           | 64.85                          | 799.71                                |
| MW-18-100      | 3/5/2019       | NM                              | NM                                 | 863.94                    | 861.49                                   | 15.85                            | 11.13                          | 852.81                                |
| MW-18-100      | 6/4/2019       | 8                               | 13                                 | 863.94                    | 861.49                                   | 15.92                            | 10.41                          | 853.53                                |
| MW-18-101      | 3/6/2019       | NM                              | NM                                 | 863.87                    | 861.24                                   | 86.90                            | 62.73                          | 801.14                                |
| MW-18-101      | 6/25/2019      | 80                              | 85                                 | 863.87                    | 861.24                                   | NM                               | 62.72                          | 801.15                                |
| MW-18-102      | 3/4/2019       | NM                              | NM                                 | 863.13                    | 863.44                                   | 14.75                            | 7.69                           | 855.44                                |
| MW-18-102      | 6/3/2019       | 10                              | 15                                 | 863.13                    | 863.44                                   | 14.75                            | 6.61                           | 856.52                                |

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| Well ID        | Date Collected | Screened Interval Top (ft. bgs) | Screened Interval Bottom (ft. bgs) | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Groundwater Elevation (ft. above MSL) |
|----------------|----------------|---------------------------------|------------------------------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|---------------------------------------|
| <b>Plant 3</b> |                |                                 |                                    |                           |                                          |                                  |                                |                                       |
| MW-18-103      | 3/4/2019       | NM                              | NM                                 | 859.13                    | 859.74                                   | 10.80                            | 0.93                           | 858.20                                |
| MW-18-103      | 6/3/2019       | 5                               | 10                                 | 859.13                    | 859.74                                   | 10.80                            | 1.03                           | 858.10                                |
| MW-18-104      | 3/4/2019       | NM                              | NM                                 | 859.12                    | 859.82                                   | 9.50                             | 0.60                           | 858.52                                |
| MW-18-104      | 6/3/2019       | 5                               | 10                                 | 859.12                    | 859.82                                   | 9.52                             | 0.27                           | 858.85                                |
| MW-18-105      | 3/4/2019       | NM                              | NM                                 | 858.59                    | 859.01                                   | 11.20                            | 0.20                           | 858.39                                |
| MW-18-105      | 6/3/2019       | 6                               | 11                                 | 858.59                    | 859.01                                   | 11.22                            | 2.04                           | 856.55                                |
| MW-18-106      | 3/4/2019       | NM                              | NM                                 | 866.15                    | 866.51                                   | 9.55                             | 1.64                           | 864.51                                |
| MW-18-106      | 6/3/2019       | 5                               | 10                                 | 866.15                    | 866.51                                   | 9.60                             | 2.43                           | 863.72                                |
| MW-18-88       | 6/3/2019       | 6                               | 11                                 | 863.70                    | 860.93                                   | 15.08                            | 4.24                           | 859.46                                |
| MW-18-89       | 6/3/2019       | 7                               | 12                                 | 866.53                    | 863.51                                   | 15.69                            | 4.61                           | 861.92                                |
| MW-18-90       | 6/3/2019       | 15                              | 20                                 | 866.32                    | 863.25                                   | 23.23                            | 9.26                           | 857.06                                |
| MW-18-91       | 6/3/2019       | 7                               | 12                                 | 865.94                    | 863.43                                   | 15.12                            | 4.59                           | 861.35                                |
| MW-18-92       | 6/3/2019       | 23                              | 28                                 | 870.43                    | 869.08                                   | 30.16                            | 11.48                          | 858.95                                |
| MW-18-93       | 3/6/2019       | NM                              | NM                                 | 863.77                    | 860.99                                   | 85.25                            | 52.12                          | 811.65                                |
| MW-18-93       | 6/25/2019      | 77.3                            | 82.3                               | 863.77                    | 860.99                                   | NM                               | 51.78                          | 811.99                                |
| MW-18-94       | 3/6/2019       | NM                              | NM                                 | 866.34                    | 863.86                                   | 79.65                            | 57.45                          | 808.89                                |
| MW-18-94       | 6/25/2019      | 72                              | 77                                 | 866.34                    | 863.86                                   | NM                               | 57.00                          | 809.34                                |
| MW-18-95       | 3/5/2019       | NM                              | NM                                 | 864.66                    | 861.76                                   | 12.50                            | 6.93                           | 857.73                                |
| MW-18-95       | 6/3/2019       | 4.5                             | 9.5                                | 864.66                    | 861.76                                   | 12.53                            | 6.48                           | 858.18                                |
| MW-18-96       | 3/5/2019       | NM                              | NM                                 | 864.60                    | 861.64                                   | 14.85                            | 14.84                          | 849.76                                |
| MW-18-96       | 6/3/2019       | 7                               | 12                                 | 864.60                    | 861.64                                   | 14.82                            | NM                             | NM                                    |
| MW-18-97       | 3/6/2019       | NM                              | NM                                 | 864.60                    | 861.64                                   | 91.75                            | 60.82                          | 803.78                                |
| MW-18-97       | 6/25/2019      | 85                              | 90                                 | 860.91                    | 859.13                                   | NM                               | 61.38                          | 799.53                                |
| MW-18-98       | 3/5/2019       | NM                              | NM                                 | 862.16                    | 859.10                                   | 14.90                            | 7.91                           | 854.25                                |
| MW-18-98       | 6/3/2019       | 7                               | 12                                 | 862.16                    | 859.10                                   | 14.97                            | 6.27                           | 855.89                                |
| MW-18-99       | 3/5/2019       | NM                              | NM                                 | 862.47                    | 859.95                                   | 16.90                            | 6.69                           | 855.78                                |
| MW-18-99       | 6/3/2019       | 9                               | 14                                 | 862.47                    | 859.95                                   | 16.93                            | 5.48                           | 856.99                                |
| MW-19          | 6/25/2019      | 55                              | 65                                 | 863.94                    | 859.92                                   | NM                               | 50.67                          | 813.27                                |
| MW-19-107      | 6/3/2019       | NM                              | NM                                 | NM                        | NM                                       | 29.92                            | 12.19                          | NM                                    |
| MW-19-108      | 6/3/2019       | NM                              | NM                                 | NM                        | NM                                       | 30.14                            | 14.14                          | NM                                    |
| MW-22          | 6/25/2019      | 52.5                            | 62.5                               | 863.94                    | 860.08                                   | NM                               | 50.00                          | 813.94                                |
| MW-23          | 6/25/2019      | 52                              | 62                                 | 859.45                    | 859.76                                   | NM                               | 44.22                          | 815.23                                |
| MW-88-1        | 6/25/2019      | 103.5                           | 140                                | 863.94                    | 859.06                                   | NM                               | 64.49                          | 799.45                                |
| MW-91-2        | 6/25/2019      | 68                              | 78                                 | 863.62                    | 863.88                                   | NM                               | 57.40                          | 806.22                                |
| MW-91-3        | 6/25/2019      | 105                             | 117                                | 863.94                    | 859.35                                   | NM                               | 65.25                          | 798.69                                |
| MW-91-4        | 6/25/2019      | 116                             | 132.5                              | 863.94                    | 855.93                                   | NM                               | 56.88                          | 807.06                                |
| MW-91-5        | 6/25/2019      | 112.5                           | 128                                | 860.61                    | 861.20                                   | NM                               | 60.12                          | 800.49                                |
| MW-91-6        | 6/25/2019      | 82                              | 98                                 | 851.84                    | 852.22                                   | 95.45                            | 58.48                          | 793.36                                |
| MW-93-1        | 6/3/2019       | 65                              | 75                                 | 866.05                    | 863.56                                   | 70.20                            | 64.35                          | 801.70                                |
| P3-SB-07       | 6/4/2019       | 11                              | 16                                 | 866.84                    | 863.63                                   | 19.68                            | 8.66                           | 858.18                                |
| PW-14-03       | 6/3/2019       | 85                              | 90                                 | 864.31                    | 861.55                                   | 97.00                            | 69.13                          | 795.18                                |
| TW-14-06       | 6/3/2019       | 82                              | 87                                 | 864.20                    | 861.44                                   | 88.65                            | 68.18                          | 796.02                                |
| UNK-10         | 6/3/2019       | 11                              | 16                                 | 863.94                    | 860.05                                   | 11.40                            | 0.50                           | 863.44                                |
| UNK-11         | 6/3/2019       | 6.5                             | 11.5                               | 863.94                    | 860.17                                   | 11.50                            | 3.20                           | 860.74                                |
| UNK-13         | 6/3/2019       | 11                              | 16                                 | 859.11                    | 859.91                                   | 15.01                            | 3.78                           | 855.33                                |
| UNK-14         | 6/3/2019       | 10.4                            | 15.4                               | 859.32                    | 859.70                                   | NM                               | 3.52                           | 857.46*                               |
| UNK-15         | 6/3/2019       | 11                              | 16                                 | 859.56                    | 859.94                                   | 15.70                            | 1.62                           | 857.94                                |

**Table 1**  
**Summary of Groundwater Elevations**  
**January 2019 to June 2019**  
**2019 Semi-Annual Groundwater Report**  
**RACER Trust Plants 2, 3, and 6 - Lansing, Michigan**

| Well ID         | Date Collected | Screened Interval Top (ft. bgs) | Screened Interval Bottom (ft. bgs) | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Groundwater Elevation (ft. above MSL) |
|-----------------|----------------|---------------------------------|------------------------------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|---------------------------------------|
| <b>Plant 6</b>  |                |                                 |                                    |                           |                                          |                                  |                                |                                       |
| MW-02-03(6)     | 6/25/2019      | 35                              | 45                                 | 869.54                    | 869.97                                   | NM                               | 59.40                          | 810.14                                |
| MW-03-04        | 6/3/2019       | 33                              | 43                                 | 865.28                    | 865.53                                   | 42.65                            | 22.05                          | 843.23                                |
| MW-03-05        | 6/3/2019       | 35                              | 45                                 | 868.90                    | 869.14                                   | 48.09                            | 24.31                          | 844.59                                |
| MW-03-06        | 6/3/2019       | 30                              | 40                                 | 870.45                    | 870.80                                   | 40.60                            | 36.22                          | 834.23                                |
| MW-03-08        | 6/3/2019       | 35                              | 45                                 | 869.03                    | 869.39                                   | NM***                            | NM***                          | NM***                                 |
| MW-04-01(6)     | 6/25/2019      | 78                              | 88                                 | 863.94                    | 867.15                                   | NM                               | 67.38                          | 796.56                                |
| MW-04-04R       | 6/25/2019      | 82                              | 110                                | 873.31                    | 870.64                                   | 114.00                           | 73.32                          | 799.99                                |
| MW-04-05(6)     | 6/3/2019       | 20                              | 30                                 | 858.33                    | 858.87                                   | 29.62                            | 9.88                           | 848.45                                |
| MW-04-06R       | 6/25/2019      | 74                              | 99.5                               | 861.56                    | 858.59                                   | 77.98                            | 62.90                          | 798.66                                |
| MW-12-03        | 6/25/2019      | 57                              | 80                                 | 863.94                    | 856.71                                   | NM                               | 60.58                          | 803.36                                |
| MW-12-11        | 6/3/2019       | 13                              | 18                                 | 857.26                    | 857.68                                   | 16.70                            | 3.75                           | 853.51                                |
| MW-12-12        | 6/3/2019       | 13                              | 18                                 | 874.34                    | 874.61                                   | 17.20                            | 5.90                           | 868.44                                |
| MW-12-13        | 6/3/2019       | 18.5                            | 23.5                               | 882.60                    | 880.51                                   | 25.45                            | 9.85                           | 872.75                                |
| MW-12-16        | 6/3/2019       | 28                              | 33                                 | 864.24                    | 864.73                                   | 32.20                            | 22.62                          | 841.62                                |
| MW-13-50        | 6/25/2019      | 85                              | 107                                | 863.94                    | 869.93                                   | NM                               | 75.91                          | 788.03                                |
| MW-13-52        | 6/25/2019      | 70                              | 80                                 | 863.94                    | 869.84                                   | NM                               | 68.81                          | 795.13                                |
| MW-14-67        | 6/3/2019       | 13                              | 18                                 | 877.76                    | 875.07                                   | 20.84                            | 5.10                           | 872.66                                |
| MW-14-70        | 6/3/2019       | 16                              | 21                                 | 882.79                    | 880.08                                   | 23.10                            | 10.16                          | 872.63                                |
| MWBP-10-UST5-6  | 6/5/2019       | 28                              | 38                                 | 863.94                    | 867.99                                   | 36.80                            | 29.47                          | 834.47                                |
| MWBP-11-UST1-4  | 6/3/2019       | 9                               | 19                                 | 868.66                    | 869.07                                   | 11.24                            | 2.51                           | 866.15                                |
| MWBP-12A-UST1-4 | 6/3/2019       | 28                              | 38                                 | 869.74                    | 869.96                                   | 36.68                            | 28.41                          | 841.33                                |
| MWBP-12-UST1-4  | 6/3/2019       | 15                              | 25                                 | 870.02                    | 870.58                                   | 11.26                            | 7.14                           | 862.88                                |
| P6-SB-07        | 6/3/2019       | 15                              | 20                                 | 877.36                    | 874.36                                   | 23.56                            | 5.45                           | 871.91                                |

**Notes:**

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

\*\* Readings not reported due to apparent user or equipment error during gauging.

\*\*\* Could not gauge well - area flooded.

NM = not collected or not available

ft. bgs = feet below ground surface

ft. above MSL = feet above Mean Sea Level

ID = identification

NS = not surveyed

TOC = top of casing

**Table 2**  
**Summary of LNAPL Thickness**  
**January 2019 to June 2019**  
**2019 Semi-Annual Groundwater Report**  
**RACER Trust Plants 2, 3, and 6 - Lansing, Michigan**

| Well ID        | Date Collected | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Depth to LNAPL (ft. below TOC) | Calc. Thickness LNAPL (ft.) | Groundwater Elevation (ft. above MSL) |
|----------------|----------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|--------------------------------|-----------------------------|---------------------------------------|
| <b>Plant 2</b> |                |                           |                                          |                                  |                                |                                |                             |                                       |
| LMW-12-03D     | 2/5/2019       | 864.99                    | 862.08                                   | NM                               | 14.60                          | 11.68                          | 2.92                        | 853.02*                               |
| LMW-12-03D     | 3/1/2019       | 864.99                    | 862.08                                   | NM                               | 14.02                          | 11.95                          | 2.07                        | 852.83*                               |
| LMW-12-03D     | 4/15/2019      | 864.99                    | 862.08                                   | NM                               | 13.94                          | 12.17                          | 1.77                        | 852.64*                               |
| LMW-12-03D     | 6/7/2019       | 863.94                    | 862.08                                   | NM                               | 13.75                          | 10.20                          | 3.55                        | 853.38*                               |
| LMW-12-08      | 2/5/2019       | 864.40                    | 861.56                                   | NM                               | 11.05                          | 8.65                           | 2.40                        | 855.51*                               |
| LMW-12-08      | 3/1/2019       | 864.40                    | 861.56                                   | NM                               | 10.43                          | 9.05                           | 1.38                        | 855.21*                               |
| LMW-12-08      | 4/15/2019      | 864.40                    | 861.56                                   | NM                               | 10.79                          | 9.43                           | 1.36                        | 854.83*                               |
| LMW-12-08      | 6/7/2019       | 863.94                    | 861.56                                   | NM                               | 8.99                           | 8.05                           | 0.94                        | 855.79*                               |
| LMW-14-12D     | 2/5/2019       | 864.59                    | 862.11                                   | NM                               | 24.98                          | 10.48                          | 14.50                       | 852.65*                               |
| LMW-14-12D     | 3/1/2019       | 864.59                    | 862.11                                   | NM                               | 23.01                          | 9.87                           | 13.14                       | 853.40*                               |
| LMW-14-12D     | 4/15/2019      | 864.59                    | 862.11                                   | NM                               | 22.11                          | 10.04                          | 12.07                       | 853.34*                               |
| LMW-14-12D     | 6/7/2019       | 863.94                    | 862.11                                   | NM                               | 25.00                          | 8.60                           | 16.40                       | 853.69*                               |
| LMW-14-13D     | 2/5/2019       | 865.03                    | 862.06                                   | 24.30                            | 11.42                          | NP                             | NP                          | 853.61                                |
| LMW-14-13D     | 3/1/2019       | 865.03                    | 862.06                                   | NM                               | 11.85                          | NP                             | NP                          | 853.18                                |
| LMW-14-13D     | 4/15/2019      | 865.03                    | 862.06                                   | NM                               | 11.08                          | NP                             | NP                          | 853.95                                |
| LMW-14-13D     | 6/7/2019       | 863.94                    | 862.06                                   | NM                               | 10.03                          | NP                             | NP                          | 853.91                                |
| LMW-14-14D     | 2/5/2019       | 864.89                    | 861.90                                   | 24.95                            | 13.52                          | NP                             | NP                          | 851.37                                |
| LMW-14-14D     | 3/1/2019       | 864.89                    | 861.90                                   | NM                               | 13.92                          | NP                             | NP                          | 850.97                                |
| LMW-14-14D     | 4/15/2019      | 864.89                    | 861.90                                   | NM                               | 12.72                          | NP                             | NP                          | 852.17                                |
| LMW-14-14D     | 6/7/2019       | 863.94                    | 861.90                                   | NM                               | 12.14                          | NP                             | NP                          | 851.80                                |
| LMW-14-15D     | 2/5/2019       | 865.11                    | 861.66                                   | 22.65                            | 22.64                          | 11.25                          | 11.39                       | 852.72*                               |
| LMW-14-15D     | 3/1/2019       | 865.11                    | 861.66                                   | NM                               | NM**                           | NM**                           | NM**                        | NM**                                  |
| LMW-14-15D     | 4/15/2019      | 865.11                    | 861.66                                   | NM                               | 21.20                          | 13.01                          | 8.19                        | 851.28*                               |
| LMW-14-15D     | 6/7/2019       | 863.94                    | 861.66                                   | 22.55                            | 22.55                          | 9.45                           | 13.10                       | 853.17*                               |
| LMW-15-16D     | 2/4/2019       | 865.20                    | 862.24                                   | NM                               | 23.08                          | 14.05                          | 9.03                        | 850.24*                               |
| LMW-15-16D     | 3/1/2019       | 865.20                    | 862.24                                   | NM                               | 22.91                          | 15.12                          | 7.79                        | 849.30*                               |
| LMW-15-16D     | 4/15/2019      | 865.20                    | 862.24                                   | NM                               | 22.35                          | 15.45                          | 6.90                        | 849.06*                               |
| LMW-15-16D     | 6/7/2019       | 863.94                    | 862.24                                   | NM                               | 25.10                          | 11.95                          | 13.15                       | 850.66*                               |
| P2-SB-20       | 6/3/2019       | 863.94                    | 861.12                                   | 16.3                             | 8.65                           | NP                             | NP                          | 855.29                                |
| P2-SB-37       | 2/4/2019       | 865.90                    | 861.90                                   | NM                               | 8.92                           | 7.08                           | 1.84                        | 858.64*                               |
| P2-SB-37       | 3/1/2019       | 865.90                    | 861.90                                   | NM                               | 9.02                           | 7.54                           | 1.48                        | 858.21*                               |
| P2-SB-37       | 4/15/2019      | 865.90                    | 861.90                                   | NM                               | 9.13                           | 7.71                           | 1.42                        | 858.05*                               |
| P2-SB-37       | 6/7/2019       | 863.94                    | 861.90                                   | NM                               | 6.80                           | 6.24                           | 0.56                        | 857.64*                               |
| PMW-01         | 2/4/2019       | 860.85                    | 861.33                                   | NM                               | 5.70                           | 2.39                           | 3.31                        | 858.13*                               |
| PMW-01         | 3/1/2019       | 860.85                    | 861.33                                   | NM                               | 5.41                           | 2.65                           | 2.76                        | 857.92*                               |
| PMW-01         | 4/15/2019      | 860.85                    | 861.33                                   | NM                               | 5.02                           | 2.79                           | 2.23                        | 857.83*                               |
| PMW-01         | 6/7/2019       | 863.94                    | 861.33                                   | NM                               | 3.35                           | 1.49                           | 1.86                        | 862.26*                               |
| PMW-02         | 2/4/2019       | 860.94                    | 861.33                                   | NM                               | 1.12                           | 1.11                           | 0.01                        | 859.83*                               |
| PMW-02         | 3/1/2019       | 860.94                    | 861.33                                   | NM                               | 2.12                           | NP                             | NP                          | 858.82                                |
| PMW-02         | 4/15/2019      | 860.94                    | 861.33                                   | NM                               | 2.49                           | 2.45                           | 0.04                        | 858.49*                               |
| PMW-02         | 6/7/2019       | 863.94                    | 861.33                                   | NM                               | 0.83                           | 0.82                           | 0.01                        | 863.11*                               |

**Table 2**  
**Summary of LNAPL Thickness**  
**January 2019 to June 2019**  
**2019 Semi-Annual Groundwater Report**  
**RACER Trust Plants 2, 3, and 6 - Lansing, Michigan**

| Well ID        | Date Collected | Reference Elevation (TOC) | Ground Surface Elevation (ft. above MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Depth to LNAPL (ft. below TOC) | Calc. Thickness LNAPL (ft.) | Groundwater Elevation (ft. above MSL) |
|----------------|----------------|---------------------------|------------------------------------------|----------------------------------|--------------------------------|--------------------------------|-----------------------------|---------------------------------------|
| <b>Plant 3</b> |                |                           |                                          |                                  |                                |                                |                             |                                       |
| CH-14-RO       | 6/3/2019       | 866.44                    | 863.68                                   | 14.88                            | 6.10                           | NP                             | NP                          | 860.34                                |
| LMW-12-09      | 6/3/2019       | 863.22                    | 860.40                                   | 10.77                            | 3.80                           | NP                             | NP                          | 859.42                                |
| LMW-12-10      | 6/3/2019       | 866.82                    | 863.60                                   | NM                               | 12.16                          | 10.37                          | 1.79                        | 856.27*                               |
| LMW-12-11      | 6/3/2019       | 866.53                    | 863.53                                   | 22.86                            | 11.22                          | NP                             | NP                          | 855.31                                |
| P3-SB-07       | 6/4/2019       | 866.84                    | 863.63                                   | 19.68                            | 8.66                           | NP                             | NP                          | 858.18                                |
| UNK-10         | 6/3/2019       | 863.94                    | 860.05                                   | 11.40                            | 0.50                           | NP                             | NP                          | 863.44                                |
| UNK-11         | 6/3/2019       | 863.94                    | 860.17                                   | 11.50                            | 3.20                           | NP                             | NP                          | 860.74                                |
| UNK-13         | 6/3/2019       | 859.11                    | 859.91                                   | 15.01                            | 3.78                           | NP                             | NP                          | 855.33                                |
| UNK-14         | 6/3/2019       | 859.32                    | 859.70                                   | NM                               | 3.52                           | 1.68                           | 1.84                        | 857.46*                               |
| UNK-15         | 6/3/2019       | 859.56                    | 859.94                                   | 15.70                            | 1.62                           | NP                             | NP                          | 857.94                                |
| <b>Plant 6</b> |                |                           |                                          |                                  |                                |                                |                             |                                       |
| P6-SB-07       | 6/3/2019       | 877.36                    | 874.36                                   | 23.56                            | 5.45                           | NP                             | NP                          | 871.91                                |

**Notes:**

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

\*\* Readings not reported due to apparent user or equipment error during gauging.

ID = identification

MSL = mean sea level

ft. = feet

LNAPL = light non-aqueous phase liquid

TOC = top of casing

NAPL = non-aqueous phase liquid

NM = not measured

RACER = Revitalizing Auto Communities Environmental Response

NP = no product

**Table 3**  
**Summary of LNAPL Recovery**  
**January 2019 through June 2019**  
**2019 Semi-Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6 - Lansing, Michigan**

| Well ID        | Recovery Date | Reference Elevation (TOC) | Ground Surface Elevation (ft. MSL) | Total Well Depth (ft. below TOC) | Depth to Water (ft. below TOC) | Depth to LNAPL (ft. below TOC) | Starting LNAPL Thickness (ft.) | Groundwater Elevation (ft. MSL) | Estimated LNAPL Volume Recovered (Gallons) | Cumulative LNAPL Volume Recovered (Gallons) | Liquid Recovered (Gallons) *** | Cumulative Liquid Recovery (Gallons) |
|----------------|---------------|---------------------------|------------------------------------|----------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|--------------------------------------------|---------------------------------------------|--------------------------------|--------------------------------------|
| <b>Plant 2</b> |               |                           |                                    |                                  |                                |                                |                                |                                 |                                            |                                             |                                |                                      |
| LMW-12-03D     | 2/5/2019      | 864.99                    | 862.08                             | NM                               | 14.60                          | 11.68                          | 2.92                           | 853.02*                         | 0.47                                       | 0.47                                        | 0.47                           | 0.47                                 |
| LMW-12-03D     | 3/1/2019      | 864.99                    | 862.08                             | NM                               | 14.02                          | 11.95                          | 2.07                           | 852.83*                         | 0.30                                       | 0.77                                        | 0.30                           | 0.77                                 |
| LMW-12-03D     | 4/15/2019     | 864.99                    | 862.08                             | NM                               | 13.94                          | 12.17                          | 1.77                           | 852.64*                         | 0.25                                       | 1.02                                        | 0.30                           | 1.07                                 |
| LMW-12-03D     | 6/7/2019      | 863.94                    | 862.08                             | NM                               | 13.75                          | 10.20                          | 3.55                           | 853.38*                         | 0.40                                       | 1.42                                        | 0.45                           | 1.52                                 |
| LMW-14-12D     | 2/5/2019      | 864.59                    | 862.11                             | NM                               | 24.98                          | 10.48                          | 14.50                          | 852.65*                         | 2.32                                       | 2.32                                        | 2.32                           | 2.32                                 |
| LMW-14-12D     | 3/1/2019      | 864.59                    | 862.11                             | NM                               | 23.01                          | 9.87                           | 13.14                          | 853.40*                         | 2.10                                       | 4.42                                        | 2.10                           | 4.42                                 |
| LMW-14-12D     | 4/15/2019     | 864.59                    | 862.11                             | NM                               | 22.11                          | 10.04                          | 12.07                          | 853.34*                         | 1.50                                       | 5.92                                        | 1.60                           | 6.02                                 |
| LMW-14-12D     | 6/7/2019      | 863.94                    | 862.11                             | NM                               | 25.00                          | 8.60                           | 16.40                          | 853.69*                         | 2.50                                       | 8.42                                        | 2.70                           | 8.72                                 |
| LMW-14-15D     | 2/5/2019      | 865.11                    | 861.66                             | 22.65                            | 22.64                          | 11.25                          | 11.39                          | 852.72*                         | 1.82                                       | 1.82                                        | 1.82                           | 1.82                                 |
| LMW-14-15D     | 3/1/2019      | 865.11                    | 861.66                             | NM                               | 14.01                          | NM**                           | NM**                           | NM**                            | 0.00                                       | 1.82                                        | 0.00                           | 1.82                                 |
| LMW-14-15D     | 4/15/2019     | 865.11                    | 861.66                             | NM                               | 21.20                          | 13.01                          | 8.19                           | 851.28*                         | 1.20                                       | 3.02                                        | 1.30                           | 3.12                                 |
| LMW-14-15D     | 6/7/2019      | 863.94                    | 861.66                             | 22.55                            | 22.55                          | 9.45                           | 13.10                          | 853.17*                         | 2.10                                       | 5.12                                        | 2.30                           | 5.42                                 |
| LMW-15-16D     | 2/4/2019      | 865.20                    | 862.24                             | NM                               | 23.08                          | 14.05                          | 9.03                           | 850.24*                         | 1.44                                       | 1.44                                        | 1.44                           | 1.44                                 |
| LMW-15-16D     | 3/1/2019      | 865.20                    | 862.24                             | NM                               | 22.91                          | 15.12                          | 7.79                           | 849.30*                         | 1.20                                       | 2.64                                        | 1.20                           | 2.64                                 |
| LMW-15-16D     | 4/15/2019     | 865.20                    | 862.24                             | NM                               | 22.35                          | 15.45                          | 6.90                           | 849.06*                         | 1.00                                       | 3.64                                        | 1.10                           | 3.74                                 |
| LMW-15-16D     | 6/7/2019      | 863.94                    | 862.24                             | NM                               | 25.10                          | 11.95                          | 13.15                          | 850.66*                         | 2.10                                       | 5.74                                        | 2.30                           | 6.04                                 |

**Per Well Totals (January through June 2019)**

| Well ID:      | LNAPL Volume Recovered (Gallons): | Total Liquid Recovered (Gallons): |
|---------------|-----------------------------------|-----------------------------------|
| LMW-12-03D    | 1.42                              | 1.52                              |
| LMW-14-12D    | 8.42                              | 8.72                              |
| LMW-14-15D    | 5.12                              | 5.42                              |
| LMW-15-16D    | 5.74                              | 6.04                              |
| <b>Total:</b> | 20.71                             | 21.71                             |

**Cumulative Totals (June 2015 through June 2019)**

| Well ID:      | LNAPL Volume Recovered (Gallons): | Total Liquid Recovered (Gallons): |
|---------------|-----------------------------------|-----------------------------------|
| LMW-12-03D    | 14.70                             | 18.84                             |
| LMW-12-10     | 3.80                              | 3.80                              |
| LMW-14-12D    | 71.77                             | 75.91                             |
| LMW-14-15D    | 46.96                             | 50.92                             |
| LMW-15-16D    | 28.41                             | 30.44                             |
| <b>Total:</b> | 165.64                            | 179.92                            |

**Notes:**

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

\*\* User or equipment error resulted in no product being observed. Resulting erroneous water level elevation not reported.

\*\*\* Recovery performed via 1.5-inch-diameter weighted PVC bailers. Volume includes groundwater and LNAPL recovered.

Recovery volume was estimated for February 2019 and March 2019 using the well diameter and product thickness.

ft. = feet

ID = Identification

MSL = mean sea level

NM = Not Measured

TOC = Top of Casing

LNAPL = light non-aqueous phase liquid

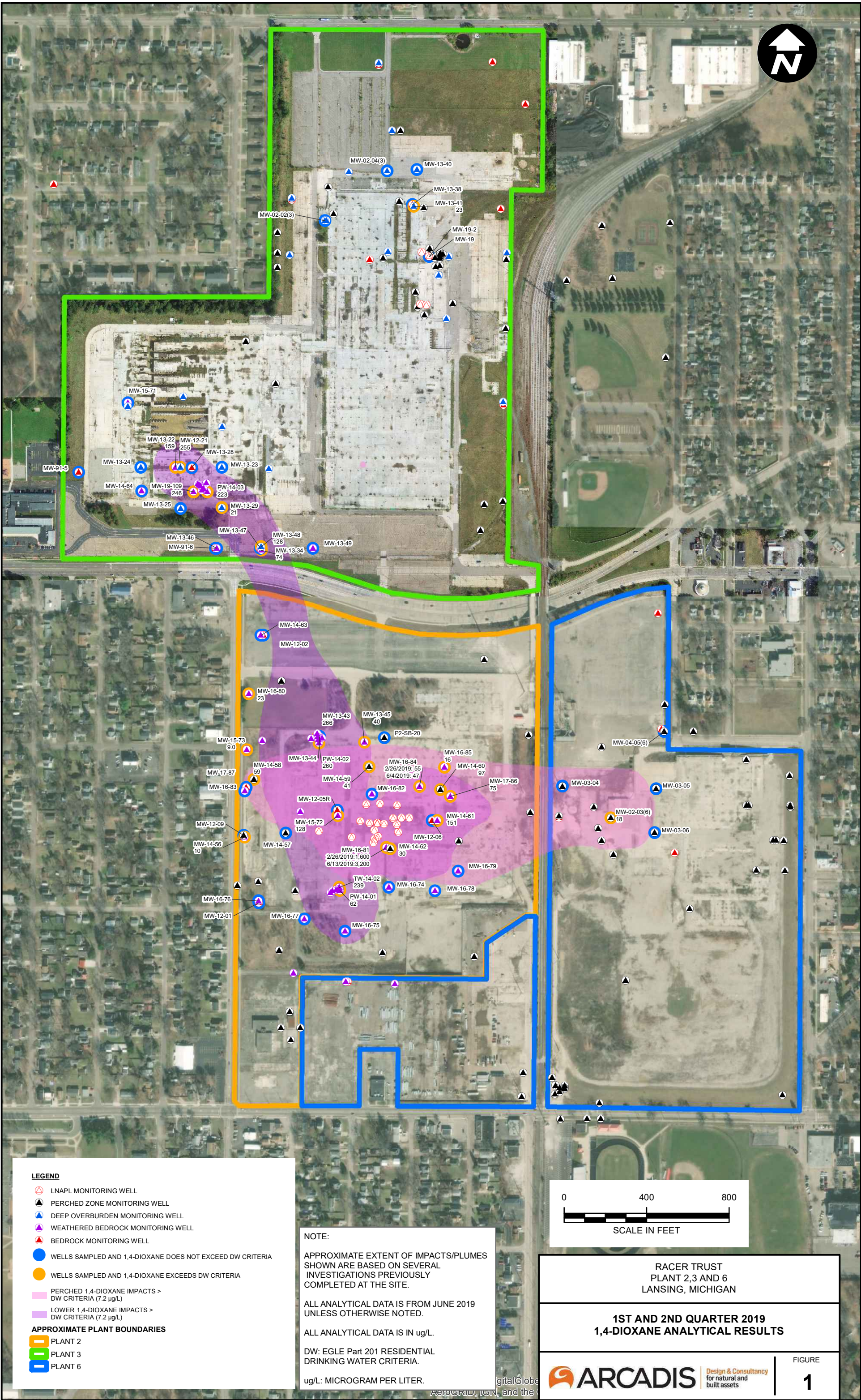
PVC = polyvinyl chloride

FIGURES



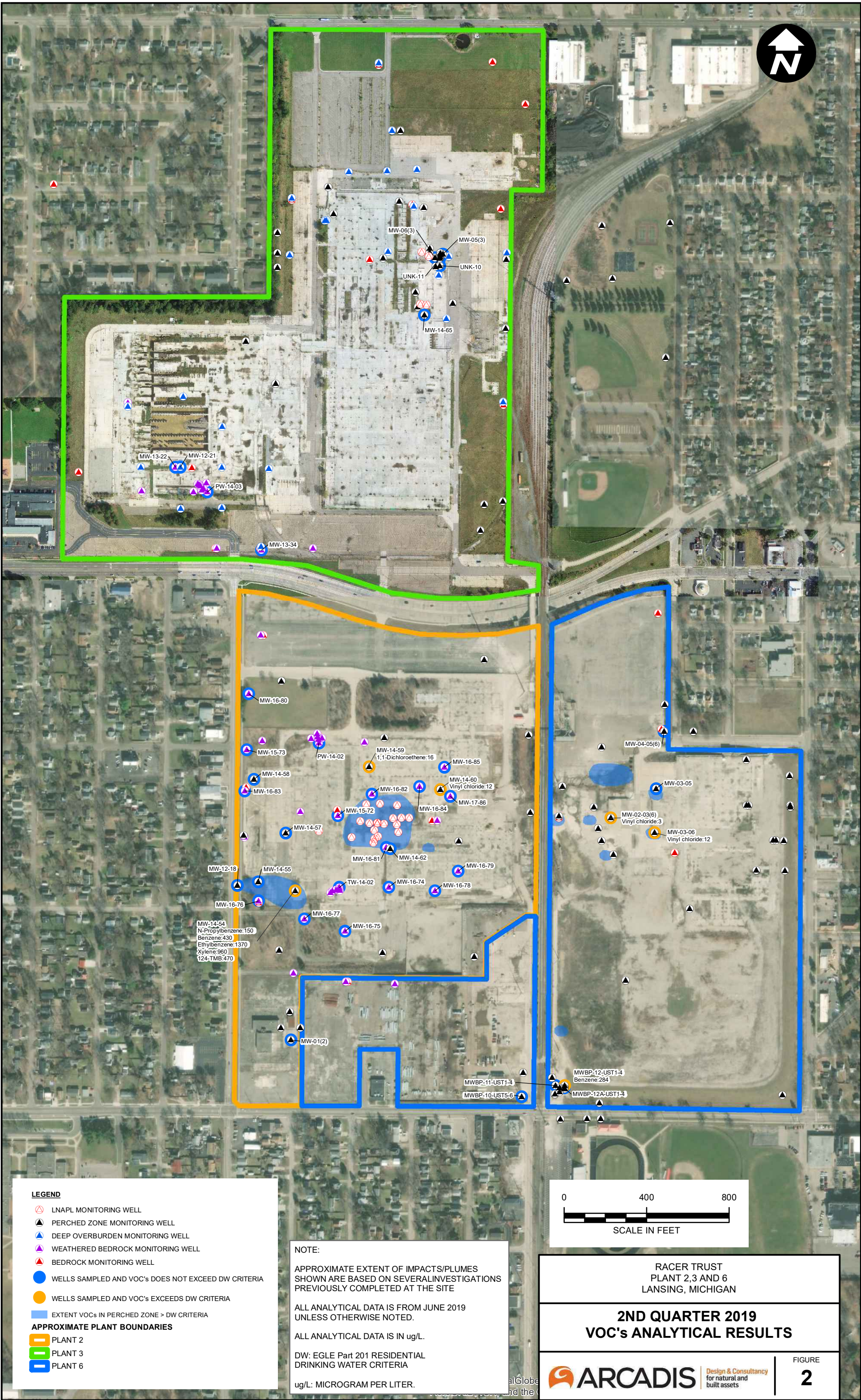


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl G:\GIS\Project Files\RACER\Lansing\Docs\Annual Report Figures\New folder\AnnualFigure\_2019\_1,4-DIOXANE.mxd PLOTTED: 10/11/2019 11:02:41 AM BY: SYaqoob



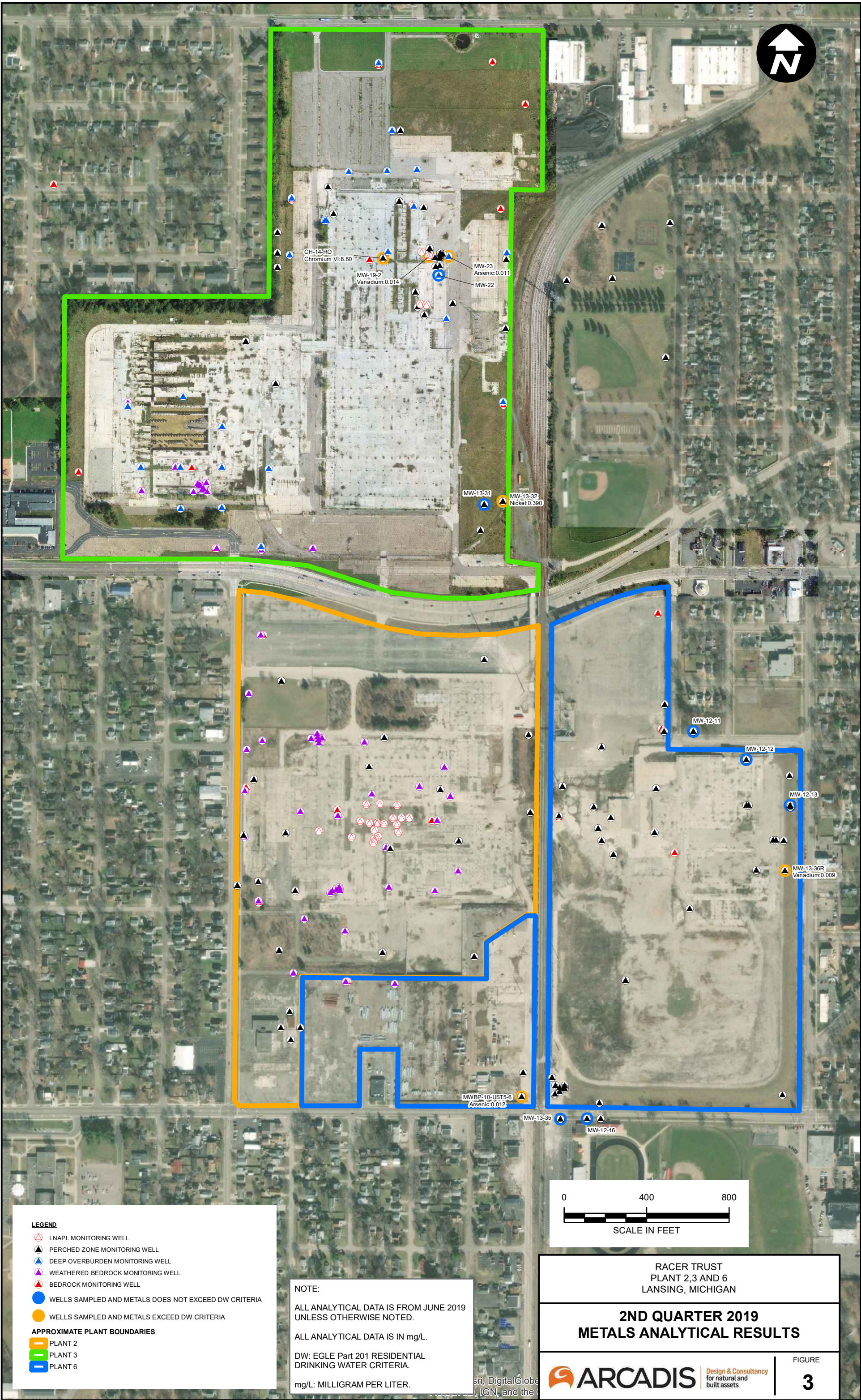


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl G:\GIS\Project Files\RACER\Lansing\Docs\Semi-Annual Report Figures\New folder\AnnualFigure\_2019\_VOC's.mxd PLOTTED: 10/8/2019 9:55:42 AM BY: SYaqoob



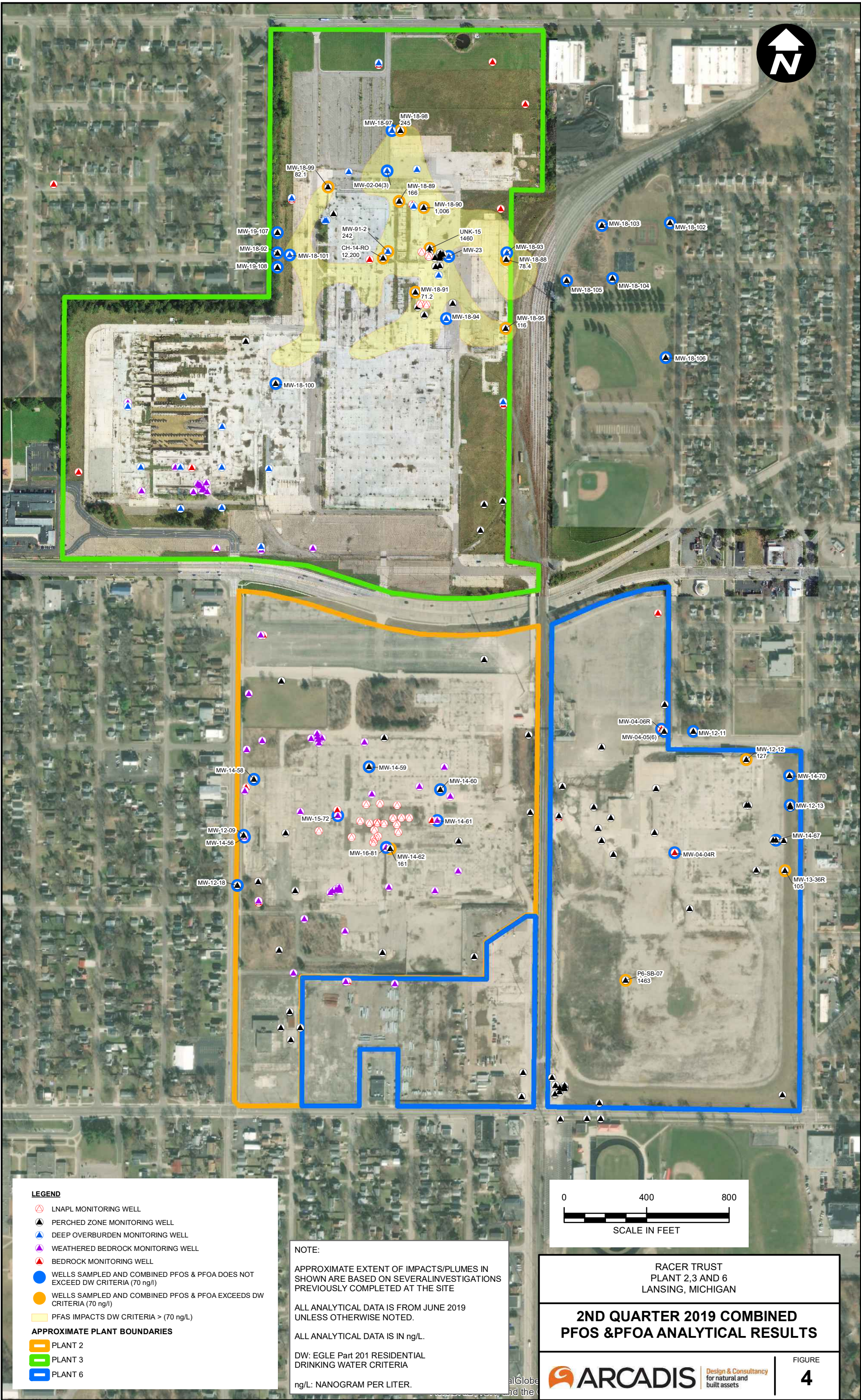


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl G:\GIS\Project Files\RACER\Lansing\Docs\Semi-Annual Report Figures\New folder\AnnualFigure\_2019\_METALS.mxd PLOTTED: 10/8/2019 9:47:46 AM BY: SYaqoob

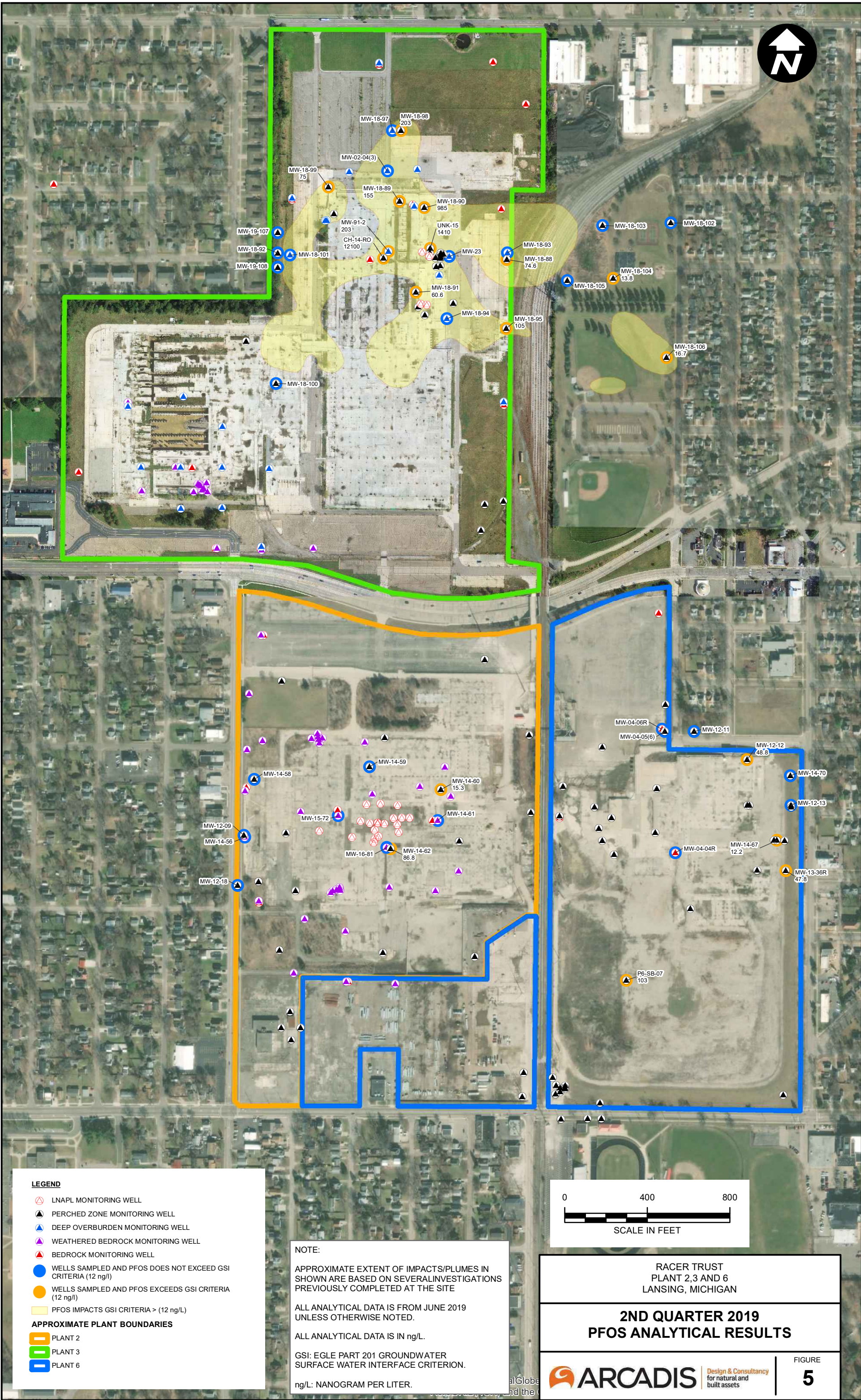




CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl G:\GIS\Project Files\RACER\Lansing\Docs\Semi-Annual Report Figures\New folder\SemiAnnualFigure\_2019\_COMBINEDPFOS\_PFOA.mxd PLOTTED: 10/8/2019 9:50:29 AM BY: SYaqob

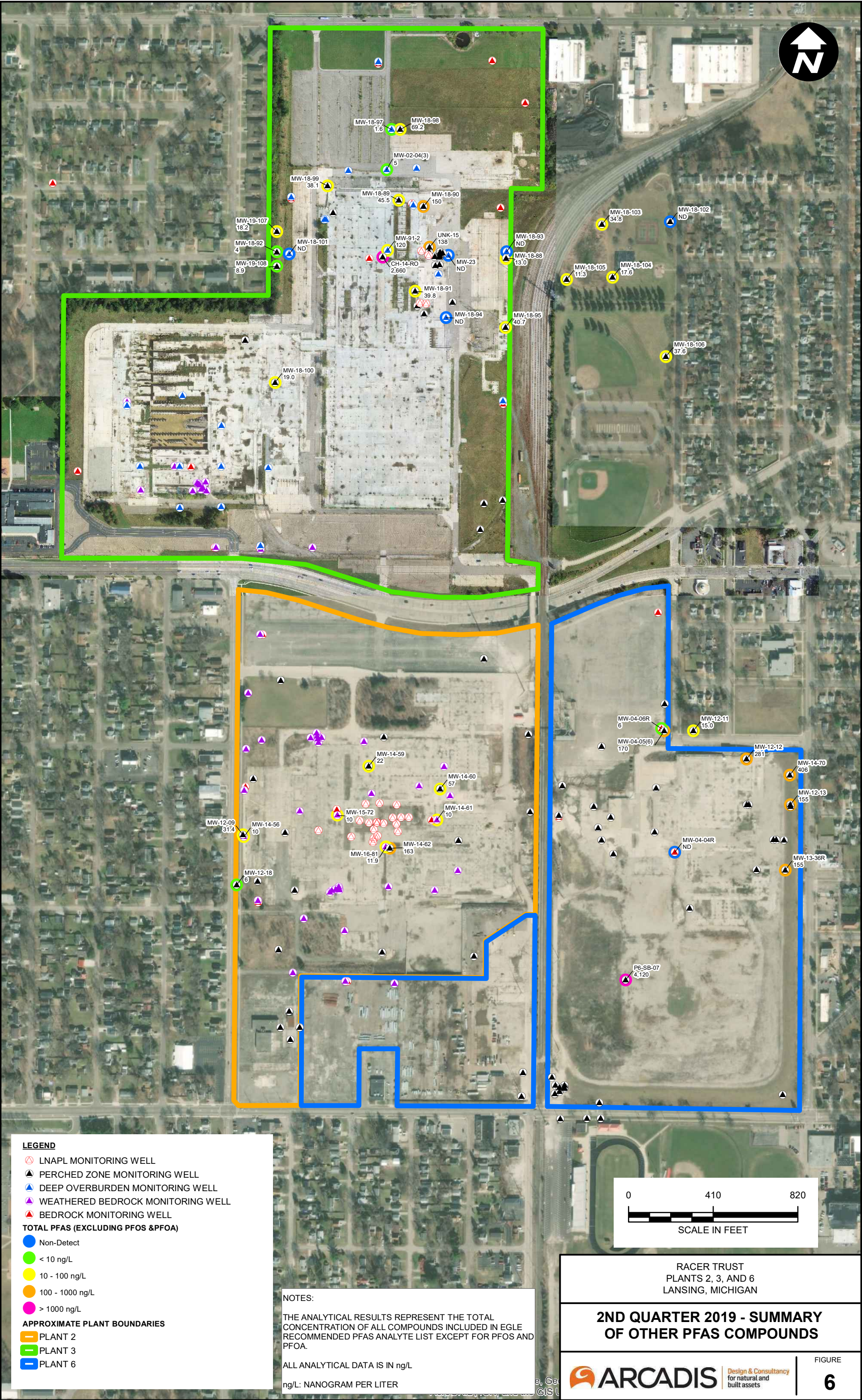








CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl G:\GIS\Project Files\RACER\Lansing\Docs\Semi-Annual Report Figures\SemiAnnualFigure\_2019\_PFASTOTAL.mxd PLOTTED: 9/27/2019 3:14:38 PM BY: SYaqobd





# APPENDIX A

First and Second Quarter 2019 Groundwater Sampling Logs



## 2019-02-26, MW-16-81

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-02-26 17:16:44 UTC by Billy Cobern |
| Updated                                                                                           | 2019-02-26 17:37:25 UTC by Billy Cobern |
| Location                                                                                          | 42.7373772813405, -84.584750337605      |
| Project Number                                                                                    | B0064479.2018                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-02-26                              |
| Well Identification                                                                               | 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 $h$ = 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                                                                                                                                                                                                                                               | 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



## 2019-02-26, MW-16-82

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-02-26 19:36:38 UTC by Billy Cobern |
| Updated                                                                                           | 2019-02-26 20:04:58 UTC by Billy Cobern |
| Location                                                                                          | 42.7380746137749, -84.5849593822701     |
| Project Number                                                                                    | B0064479.2018                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-02-26                              |
| Well Identification                                                                               | 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

304/1

Signed 2019-02-26 19:38:39 UTC

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## 2019-02-26, MW-16-84

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-02-26 18:27:52 UTC by Billy Cobern |
| Updated                                                                                           | 2019-02-26 18:47:24 UTC by Billy Cobern |
| Location                                                                                          | 42.7381823631402, -84.5842363593025     |
| Project Number                                                                                    | B0064479.2018                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-02-26                              |
| Well Identification                                                                               | 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 $h$ = 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                                                                                                                                                                                                                                               | 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. L.' followed by a horizontal line.

Signed 2019-02-26 18:30:20 UTC



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

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 15:01:55 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 15:23:00 UTC by Austin Westhuis |
| Location                                                                                          | 42.7451602556209, -84.5848308038754        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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 "Andrew Walsh". The signature is fluid and cursive, with a long horizontal stroke at the end.

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

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

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 16:17:47 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 17:56:49 UTC by Jessica Fransted |
| Location                                                                                          | 42.7348445, -84.5864865                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

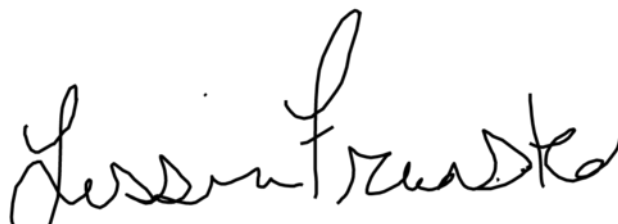
## VOCs

|                      |            |
|----------------------|------------|
| 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)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 19:14:07 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 19:48:59 UTC by Austin Westhuis |
| Location                                                                                          | 42.7457134193208, -84.5859833155615        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| 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 $h$ = 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                                                                                                                                                                                                                                               | 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

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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 17:24:53 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-10 18:30:47 UTC by Billy Cobern |
| Location                                                                                          | 42.7376586199205, -84.5806439594222     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-10                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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                     |

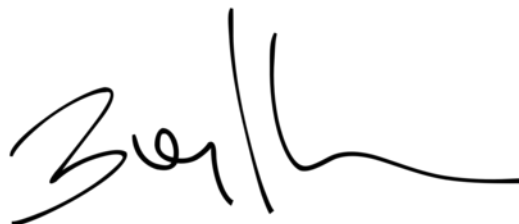
Photo of Well



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



Signature

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

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

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

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 17:28:17 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 17:56:15 UTC by Austin Westhuis |
| Location                                                                                          | 42.7463276032757, -84.584729215209         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| 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 'Amal W.' with a stylized flourish at the end.

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

---

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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 13:53:32 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-10 14:27:19 UTC by Billy Cobern |
| Location                                                                                          | 42.7381940558951, -84.5816236362649     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-10                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                   | 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

A handwritten signature in black ink, appearing to be 'B4L' or similar, written in a cursive style.

Signed 2019-06-10 13:56:50 UTC

---



## 2019-06-10, MW-03-05

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 14:43:58 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-10 15:36:31 UTC by Billy Cobern |
| Location                                                                                          | 42.7381588519018, -84.5799137280179     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-10                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 16:05:40 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-10 16:27:51 UTC by Billy Cobern |
| Location                                                                                          | 42.7375869546484, -84.5799255465014     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-10                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

341

Signed 2019-06-10 16:08:54 UTC

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## 2019-06-12, MW-03-08

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 18:41:25 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-12 18:42:50 UTC by Billy Cobern |
| Location                                                                                          | 42.7372937975849, -84.5808401797754     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-12                              |
| Well ID                                                                                           | MW-03-08                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | No                                      |
| Weather                                                                                           | Mostly Cloudy Windy 70's                |

## Evacuation Details

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

## Well Information

|                   |                   |
|-------------------|-------------------|
| Well Location     | Center of Plant 6 |
| Condition of Well | Unknown           |

Photo of Well



|          |                                    |
|----------|------------------------------------|
| Comments | Well is under water, cannot access |
|----------|------------------------------------|

Signature

Br/L

Signed 2019-06-12 18:42:47 UTC

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## 2019-06-06, MW-04-04R

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 14:35:04 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-06 15:30:01 UTC by Billy Cobern |
| Location                                                                                          | 42.7372924564804, -84.5796246361775     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-06                              |
| 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  $h = 1$  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) | 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: Zull*

Signed 2019-06-06 14:37:06 UTC

## 2019-06-12, MW-04-05(6)

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 18:53:14 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-12 19:15:14 UTC by Billy Cobern |
| Location                                                                                          | 42.7389085712309, -84.5797724929495     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-12                              |
| 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

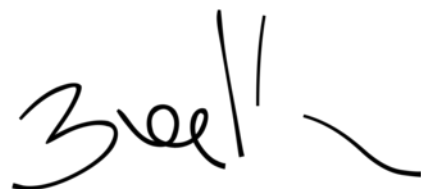
|                          |                                |
|--------------------------|--------------------------------|
| Well Location            | East side of Plant 6 near gate |
| Condition of Well        | Good                           |
| Well Locked at Arrival   | No                             |
| Well Locked at Departure | No                             |

Photo of Well



|          |                                   |
|----------|-----------------------------------|
| Comments | Didn't meet drawdown requirements |
|----------|-----------------------------------|

Signature

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

Signed 2019-06-12 18:59:10 UTC

---

## 2019-06-06, MW-04-06R

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 13:30:40 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-06 14:22:32 UTC by Billy Cobern |
| Location                                                                                          | 42.7389234071996, -84.5797877480132     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-06                              |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 17:05:26 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 17:31:48 UTC by Austin Westhuis |
| Location                                                                                          | 42.7452150732677, -84.5837014262421        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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

André

Signed 2019-06-12 17:07:03 UTC

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

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 17:49:57 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 18:23:08 UTC by Austin Westhuis |
| Location                                                                                          | 42.745182928669, -84.5839567390127         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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 $h$ = 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                                                                                                                                                                                                                                               | 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-13 15:31:25 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-13 17:26:58 UTC by Gary Schafer |
| Location                                                                                          | 42.7366361953716, -84.5870332327528     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-13                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 72.68         |
| 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 16:18:50 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-12 17:36:51 UTC by Gary Schafer |
| Location                                                                                          | 42.7402007673334, -84.5870183967842     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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 "Gangstuber", is written diagonally across the page.

Signed 2019-06-12 17:36:49 UTC

## 2019-06-10, MW-12-05R

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 16:29:23 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 17:51:09 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7378475, -84.5856607                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-04 16:44:27 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-11 18:33:12 UTC by Austin Westhuis   |
| Location                                                                                          | 42.7376624, -84.5838572                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-04                                   |
| 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 $h = 1$ 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 read 'AR-1'.

Signed 2019-06-04 16:47:01 UTC

## 2019-06-12, MW-12-11

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 13:49:01 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-12 14:12:41 UTC by Billy Cobern |
| Location                                                                                          | 42.7389073139455, -84.5792249870343     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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            |
| 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 15:30:23 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-12 15:49:10 UTC by Billy Cobern |
| Location                                                                                          | 42.7385158371578, -84.5782673545969     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

## 2019-06-12, MW-12-13

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 16:54:10 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-12 17:15:18 UTC by Billy Cobern |
| Location                                                                                          | 42.7379160700764, -84.5775286574704     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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



Comments

Didn't meet drawdown requirements

Signature

Sull

Signed 2019-06-12 17:04:42 UTC

## 2019-06-10, MW-12-16

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 19:22:34 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-10 19:41:24 UTC by Billy Cobern |
| Location                                                                                          | 42.7337465342532, -84.5811201353414     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-10                              |
| 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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## 2019-06-05, MW-12-21

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-05 18:28:40 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-05 19:23:44 UTC by Gary Schafer |
| Location                                                                                          | 42.7423021942775, -84.5885321684969     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-05                              |
| 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 $h = 1$ 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

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## 2019-06-06, MW-13-22

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 13:01:49 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-06 13:28:11 UTC by Gary Schafer |
| Location                                                                                          | 42.7423459059026, -84.5886404626859     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-06                              |
| 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

## 2019-06-05, MW-13-23

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 16:34:59 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-05 19:29:17 UTC by Donald Richmond |
| Location                                                                                          | 42.742337733547, -84.5877545793397         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| 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 $h$ = 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                                                                                                                                                                                                                                               | 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  |

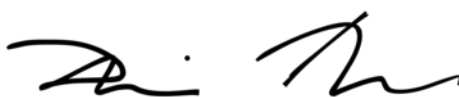
### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| 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 'M', followed by a period.

Signed 2019-06-05 17:32:07 UTC

---

## 2019-06-06, MW-13-24

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 13:14:59 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-06 13:36:10 UTC by Donald Richmond |
| Location                                                                                          | 42.742398502345, -84.5893294551266         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| 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 $h$ = 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                                                                                                                                                                                                                                               | 09:05         |

### @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

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 19:15:55 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-05 21:00:03 UTC by Donald Richmond |
| Location                                                                                          | 42.741839638951, -84.5886303205831         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| 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

*Ari Rim*

Signed 2019-06-05 19:52:43 UTC

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## 2019-06-05, MW-13-28

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 14:29:23 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-05 19:29:09 UTC by Donald Richmond |
| Location                                                                                          | 42.7424328262384, -84.5882214513464        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| 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         |

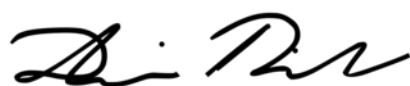
### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| 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 be 'D. R.' or similar, written in a cursive style.

Signed 2019-06-05 15:53:12 UTC

---

## 2019-06-05, MW-13-29

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 18:13:15 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-05 19:28:15 UTC by Donald Richmond |
| Location                                                                                          | 42.741872789378, -84.587890198533          |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-11 16:17:19 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-11 20:25:15 UTC by Gary Schafer |
| Location                                                                                          | 42.7419097954805, -84.5829588734401     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-11                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 4.77          |
| 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

|           |       |
|-----------|-------|
| Purge End | 12:48 |
|-----------|-------|

|                               |         |
|-------------------------------|---------|
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |
| Well Volumes Purged           | 1.55    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:48 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-13-31 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2019-06-11 17:00:58 UTC



## 2019-06-11, MW-13-32

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-11 17:23:12 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-11 20:26:23 UTC by Gary Schafer |
| Location                                                                                          | 42.741920147131, -84.5826971904231      |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-11                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 15:06:20 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-07 16:00:07 UTC by Donald Richmond |
| Location                                                                                          | 42.7413358027514, -84.5870959293885        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-07                                 |
| 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                |         |

*Don Dren*

Signed 2019-06-07 15:19:19 UTC

## 2019-06-10, MW-13-35

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 18:57:14 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-10 19:06:31 UTC by Billy Cobern |
| Location                                                                                          | 42.7337270463283, -84.5816347841961     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-10                              |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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

34/L

Signed 2019-06-10 19:00:25 UTC

---

## 2019-06-12, MW-13-36R

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 17:57:46 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-12 18:17:24 UTC by Billy Cobern |
| Location                                                                                          | 42.7370619122337, -84.5775954612387     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

364/L

Signed 2019-06-12 18:05:26 UTC

## 2019-06-10, MW-13-38

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 15:51:07 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-10 17:16:34 UTC by Gary Schafer |
| Location                                                                                          | 42.7459313907127, -84.5844271314187     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-10                              |
| 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 'H. Smith', written in a cursive style.

Signed 2019-06-10 17:07:22 UTC

---

## 2019-06-11, MW-13-40

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-11 13:50:07 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-11 20:25:43 UTC by Gary Schafer |
| Location                                                                                          | 42.7464133920546, -84.5842533745659     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-11                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 61.9          |
| 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-10 13:49:43 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-10 15:09:36 UTC by Gary Schafer |
| Location                                                                                          | 42.7459312649842, -84.5842511952711     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-10                              |
| 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 $h = 1$ 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 Ashken

Signed 2019-06-10 15:09:35 UTC

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## 2019-06-06, MW-13-43

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 13:13:48 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 13:59:09 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7388463, -84.5860208                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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.', with a long horizontal stroke extending to the right.

Signed 2019-06-06 13:15:40 UTC

## 2019-06-06, MW-13-44

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 14:35:26 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 15:11:35 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7387863, -84.585979                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| 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

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 18:20:02 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 19:13:53 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7387146, -84.5851088                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 17:16:49 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-06 18:29:33 UTC by Donald Richmond |
| Location                                                                                          | 42.7413689950879, -84.5879014302833        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| 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                                                                                           | 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  |

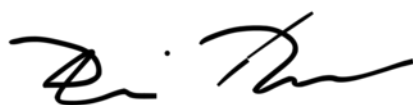
## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| 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 read "D. Thun".

Signed 2019-06-06 17:21:22 UTC

---

## 2019-06-07, MW-13-47

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 13:42:03 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-07 15:19:56 UTC by Donald Richmond |
| Location                                                                                          | 42.741289869922, -84.5872044750346         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-07                                 |
| 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 $h = 1$ 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

## 2019-06-07, MW-13-49

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 16:36:47 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-07 17:58:49 UTC by Donald Richmond |
| Location                                                                                          | 42.7412828291233, -84.5870597195668        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-07                                 |
| 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".

Signed 2019-06-07 17:31:07 UTC

---



## 2019-06-06, MW-13-49

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 19:10:18 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-06 20:13:03 UTC by Donald Richmond |
| Location                                                                                          | 42.7413767064388, -84.5861125645084        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| 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



Signed 2019-06-06 19:30:31 UTC

## 2019-06-05, MW-14-54

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 18:03:46 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 19:26:25 UTC by Jessica Fransted |
| Location                                                                                          | 42.7367744, -84.5864113                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

Jessica Tranter

Signed 2019-06-05 18:06:02 UTC

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## 2019-06-05, MW-14-55

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 14:49:51 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 15:34:14 UTC by Jessica Fransted |
| Location                                                                                          | 42.7369599, -84.5870697                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-13 13:32:40 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-13 13:47:49 UTC by Billy Cobern |
| Location                                                                                          | 42.7374824323158, -84.5873253420783     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-13                              |
| 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  $h = 1$  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) | 76.5     |
| 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

## 2019-06-05, MW-14-57

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 13:12:48 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 14:42:29 UTC by Jessica Fransted |
| Location                                                                                          | 42.7375358, -84.5865962                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| 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 $h = 1$ 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

Lessie Frankel

Signed 2019-06-05 14:42:04 UTC

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## 2019-06-06, MW-14-58

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 13:25:50 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 17:20:32 UTC by Jessica Fransted |
| Location                                                                                          | 42.7382319, -84.587121                      |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| 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 $h = 1$ 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



Signed 2019-06-06 14:59:57 UTC

## 2019-06-06, MW-14-59

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 15:07:00 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 19:37:21 UTC by Jessica Fransted |
| Location                                                                                          | 42.7384439, -84.5850509                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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 Fransted

Signed 2019-06-06 15:12:29 UTC

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## 2019-06-06, MW-14-60

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 16:22:58 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 19:40:14 UTC by Jessica Fransted |
| Location                                                                                          | 42.7381694, -84.5838451                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| 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

## 2019-06-13, MW-14-61

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-13 16:23:20 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-13 16:42:20 UTC by Billy Cobern |
| Location                                                                                          | 42.7377310395639, -84.5838617720498     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-13                              |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 12:10         |

### @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

## 2019-06-06, MW-14-62

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 17:26:56 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 19:36:30 UTC by Jessica Fransted |
| Location                                                                                          | 42.7372633, -84.5846537                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

## 2019-06-12, MW-14-63

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 13:54:09 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-12 15:01:28 UTC by Gary Schafer |
| Location                                                                                          | 42.7402280923377, -84.5872271061731     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 14:23:52 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-06 15:31:14 UTC by Gary Schafer |
| Location                                                                                          | 42.7421424771126, -84.5891970210565     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-06                              |
| 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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## 2019-06-11, MW-14-65

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-11 18:51:08 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-11 20:35:03 UTC by Gary Schafer |
| Location                                                                                          | 42.7444224805038, -84.5841454156531     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-11                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 8.1           |
| 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                |                                                                                                                                                 |



Signed 2019-06-11 20:16:48 UTC

## 2019-06-06, MW-14-67

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 17:45:33 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-06 18:05:43 UTC by Billy Cobern |
| Location                                                                                          | 42.7374205738704, -84.5777645242257     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-06                              |
| 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

## 2019-06-06, MW-14-70

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 18:28:43 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-06 19:17:43 UTC by Billy Cobern |
| Location                                                                                          | 42.7383252745892, -84.5775922761155     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-06                              |
| 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

3ue|h

Signed 2019-06-06 18:37:56 UTC

## 2019-06-06, MW-15-71

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 14:36:31 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-06 14:55:06 UTC by Donald Richmond |
| Location                                                                                          | 42.7431786898922, -84.5896195527954        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| 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 $h = 1$ 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:5.82, 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)          | 5.82                                                                             |
| 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:5.82, 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  |



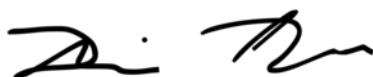
## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| 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

## 2019-06-13, MW-15-72

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-13 14:42:41 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-13 15:06:45 UTC by Billy Cobern |
| Location                                                                                          | 42.7377306204687, -84.5855753683341     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-13                              |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 68.5          |
| 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



## 2019-06-13, MW-15-73

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-13 13:42:41 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-13 17:27:11 UTC by Gary Schafer |
| Location                                                                                          | 42.7386326389785, -84.5871880465044     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-13                              |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 09:33         |

### @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 field of the table.

Signed 2019-06-13 15:31:07 UTC

## 2019-06-05, MW-16-74

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 14:41:47 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 15:46:59 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7368059, -84.5847615                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| 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                                          |
| 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

---

## 2019-06-05, MW-16-75

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 16:51:50 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 17:52:53 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7362544, -84.5854951                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| 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                                                                                           | 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 $h = 1$ 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 read 'APR', followed by a comma.

Signed 2019-06-05 16:53:47 UTC

## 2019-06-10, MW-16-76

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 18:02:45 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 18:32:22 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7366112, -84.5871603                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| 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  $h = 1$  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                              | 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

## 2019-06-06, MW-16-77

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 17:55:13 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 18:33:23 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7363755, -84.586274                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 13:50              |

### @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.

Signed 2019-06-06 17:57:13 UTC

---

## 2019-06-05, MW-16-78

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 13:35:58 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 14:26:18 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7367955, -84.5839289                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| 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  $h = 1$  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                              | 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

MPM

Signed 2019-06-05 13:41:36 UTC

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## 2019-06-04, MW-16-79

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-04 18:27:53 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-04 18:59:18 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7369626, -84.5834106                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-04                                   |
| 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                                                                                           | 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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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## 2019-06-12, MW-16-80

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-12 18:19:05 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-12 19:21:25 UTC by Gary Schafer |
| Location                                                                                          | 42.7392370580162, -84.587062820871      |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-12                              |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 14:18         |

### @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

## 2019-06-13, MW-16-81

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 14:07:40 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-13 15:21:10 UTC by Austin Westhuis |
| Location                                                                                          | 42.7374026785071, -84.5847941749586        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-13                                 |
| 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



Signed 2019-06-13 14:09:44 UTC

## 2019-06-07, MW-16-82

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-07 13:11:06 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-07 14:44:11 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.738041, -84.5851729                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-07                                   |
| 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 $h = 1$ 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         |

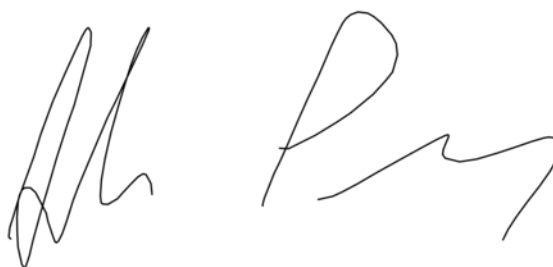
### VOCs

|                     |            |
|---------------------|------------|
| 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

## 2019-06-10, MW-16-83

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 13:10:20 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 14:11:39 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7381009, -84.5873354                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| 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  $h = 1$  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 parts: a stylized 'H' followed by a more complex, cursive-like flourish.

Signed 2019-06-10 13:26:32 UTC

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## 2019-06-04, MW-16-84

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-04 13:30:25 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-04 15:42:07 UTC by Jessica Fransted |
| Location                                                                                          | 42.7382113, -84.5841987                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-04                                  |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

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## 2019-06-04, MW-16-85

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-04 16:07:23 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-04 18:05:42 UTC by Jessica Fransted |
| Location                                                                                          | 42.7383442, -84.5838467                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-04                                  |
| 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                |              |



Signed 2019-06-04 16:43:41 UTC

## 2019-06-04, MW-17-86

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-04 14:32:01 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-04 15:38:23 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7379976, -84.5834924                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-04                                   |
| 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

---



## 2019-06-10, MW-17-87

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 14:34:51 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 15:23:03 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7381523, -84.5872487                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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

## 2019-06-05, MW-18-100

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 18:56:26 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 19:29:33 UTC by Austin Westhuis |
| Location                                                                                          | 42.7435930073659, -84.5869365894092        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 13.43         |
| 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



Signed 2019-06-05 19:03:52 UTC



## 2019-06-11, MW-18-101

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 14:57:07 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 15:15:12 UTC by Austin Westhuis |
| Location                                                                                          | 42.7452821284931, -84.5864828769905        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| 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

## 2019-06-06, MW-18-102

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 14:37:19 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 15:05:23 UTC by Austin Westhuis |
| Location                                                                                          | 42.7455550013508, -84.5796357841087        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| 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

André Wal

Signed 2019-06-06 14:38:56 UTC

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## 2019-06-06, MW-18-103

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 19:03:52 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 19:33:18 UTC by Austin Westhuis |
| Location                                                                                          | 42.7447875962059, -84.5808804129107        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| 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. W. K.', written in a cursive style.

Signed 2019-06-06 19:05:18 UTC

## 2019-06-06, MW-18-104

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 15:28:45 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 16:06:38 UTC by Austin Westhuis |
| Location                                                                                          | 42.7445508493509, -84.5806421992225        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| 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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## 2019-06-06, MW-18-105

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 18:08:30 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 18:34:13 UTC by Austin Westhuis |
| Location                                                                                          | 42.7445216384183, -84.5813347120626        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| 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

## 2019-06-06, MW-18-106

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 16:32:59 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 17:11:43 UTC by Austin Westhuis |
| Location                                                                                          | 42.7446004702176, -84.5806954243077        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| 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 'Andrew' followed by a stylized surname.

Signed 2019-06-06 16:34:37 UTC

## 2019-06-07, MW-18-88

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 13:12:02 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 13:36:51 UTC by Austin Westhuis |
| Location                                                                                          | 42.745165703858, -84.5827090927256         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| 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



Signed 2019-06-07 13:13:39 UTC



## 2019-06-07, MW-18-89

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 14:32:13 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 15:16:40 UTC by Austin Westhuis |
| Location                                                                                          | 42.745958631898, -84.5845117048217         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 13.19         |
| 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 "A. W. H.", is centered on the page.

Signed 2019-06-07 14:34:05 UTC

## 2019-06-07, MW-18-89

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 14:32:13 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 15:16:40 UTC by Austin Westhuis |
| Location                                                                                          | 42.745958631898, -84.5845117048217         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 13.19         |
| 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'.

Signed 2019-06-07 14:34:05 UTC



## 2019-06-07, MW-18-90

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 15:33:19 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 16:00:58 UTC by Austin Westhuis |
| Location                                                                                          | 42.7458759863328, -84.5842452441199        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 21.83         |
| 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

André

Signed 2019-06-07 15:34:46 UTC

---

## 2019-06-10, MW-18-91

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 13:20:24 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 14:00:36 UTC by Austin Westhuis |
| Location                                                                                          | 42.7447377657916, -84.5841936954154        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| 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

## 2019-06-05, MW-18-92

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 16:45:33 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 17:14:52 UTC by Austin Westhuis |
| Location                                                                                          | 42.7453216491665, -84.5865020715488        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| 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. W.' with a long horizontal stroke extending to the right.

Signed 2019-06-05 16:46:59 UTC

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## 2019-06-10, MW-18-93

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 15:40:48 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 16:20:27 UTC by Austin Westhuis |
| Location                                                                                          | 42.745167003053, -84.5827538520885         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| 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

## 2019-06-10, MW-18-94

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 17:32:49 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 18:12:49 UTC by Austin Westhuis |
| Location                                                                                          | 42.7442600392203, -84.5839324314935        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| 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

---

## 2019-06-10, MW-18-95

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 14:31:25 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 15:10:33 UTC by Austin Westhuis |
| Location                                                                                          | 42.744269678409, -84.5826431271476         |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| 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

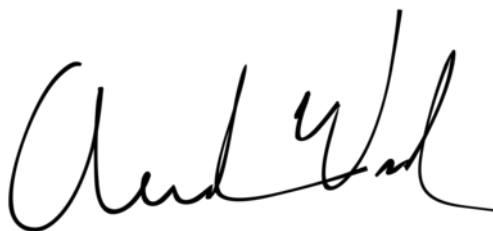
|               |       |
|---------------|-------|
| Sample Time   | 11:10 |
| Color         | Clear |
| Notable odors | None  |

### 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



## 2019-06-11, MW-18-97

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 15:47:15 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 16:10:12 UTC by Austin Westhuis |
| Location                                                                                          | 42.7467840398129, -84.5846515149666        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| 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

And Wd

Signed 2019-06-11 15:48:44 UTC

---

## 2019-06-04, MW-18-98

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 18:10:54 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-04 20:18:55 UTC by Austin Westhuis |
| Location                                                                                          | 42.7468124125551, -84.5846597292317        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-04                                 |
| 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)                                                                          | 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 $h$ = 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)                                                                                                                                                                                                                  | 12.47         |
| 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 WH'.

Signed 2019-06-04 18:24:29 UTC



## 2019-06-05, MW-18-99

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 14:29:22 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 14:47:46 UTC by Austin Westhuis |
| Location                                                                                          | 42.7462138189401, -84.5858970657779        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 14.43         |
| 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 be 'André' or similar, written in a cursive style.

Signed 2019-06-05 14:30:44 UTC

## 2019-06-05, MW-19-107

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 17:24:32 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 18:02:45 UTC by Austin Westhuis |
| Location                                                                                          | 42.7454372775208, -84.5865373593611        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| 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

---

## 2019-06-05, MW-19-108

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 15:08:10 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 15:51:47 UTC by Austin Westhuis |
| Location                                                                                          | 42.7450318029548, -84.5864122175468        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| 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



Signed 2019-06-05 15:10:00 UTC

## 2019-06-04, MW-19-109

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 18:13:30 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-04 18:59:11 UTC by Donald Richmond |
| Location                                                                                          | 42.7420945326264, -84.5880440064562        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-04                                 |
| 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

---

## 2019-06-13, MW-19

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 13:05:52 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-13 13:41:57 UTC by Austin Westhuis |
| Location                                                                                          | 42.7451760974179, -84.5839902666254        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-13                                 |
| 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 $h = 1 \text{ foot}$ ] 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)                                                                                                                                                                                                                              | 61.71         |
| 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

André

Signed 2019-06-13 13:07:35 UTC

---

## 2019-06-06, MW-22

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 19:39:19 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-06 20:33:48 UTC by Gary Schafer |
| Location                                                                                          | 42.7449802961599, -84.5838837326361     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-06                              |
| 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 $h$ = 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                                                                                                                                                                                                                                               | 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

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## 2019-06-12, MW-23

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 20:18:15 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 20:38:20 UTC by Austin Westhuis |
| Location                                                                                          | 42.7452135645251, -84.5836792141987        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 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



Signed 2019-06-12 20:20:31 UTC

## 2019-06-12, MW-91-2

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 13:47:56 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 14:18:50 UTC by Austin Westhuis |
| Location                                                                                          | 42.7452996885802, -84.5847282093806        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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 $h = 1 \text{ foot}$ ] 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)                                                                                                                                                                                                                              | 74.15         |
| 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                |                                                                                          |



Signed 2019-06-12 13:51:51 UTC



## 2019-06-06, MW-91-5

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 16:57:13 UTC by Gary Schafer |
| Updated                                                                                           | 2019-06-06 17:56:40 UTC by Gary Schafer |
| Location                                                                                          | 42.742380145977, -84.5903222915573      |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-06-06                              |
| 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 A. H. H.

Signed 2019-06-06 17:56:33 UTC

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## 2019-06-06, MW-91-6

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 16:16:53 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-06 17:20:43 UTC by Donald Richmond |
| Location                                                                                          | 42.7413337491851, -84.5879873447908        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| 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

*Di Ru*

Signed 2019-06-06 16:56:01 UTC

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## 2019-06-05, MWBP-10-UST5-6

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-05 14:43:16 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-05 15:53:03 UTC by Billy Cobern |
| Location                                                                                          | 42.734020873944, -84.5823226031704      |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-05                              |
| 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 $h$ = 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                                                                                                                                                                                                                                               | 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

3u!L

Signed 2019-06-05 14:46:56 UTC

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## 2019-06-05, MWBP-11-UST1-4

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-05 16:31:47 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-05 16:45:27 UTC by Billy Cobern |
| Location                                                                                          | 42.7341826446752, -84.5817208663417     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-05                              |
| 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 $h = 1$ 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)                                                                                                                                                                                                                     | 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-12-UST1-4

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-05 18:05:22 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-05 18:21:59 UTC by Billy Cobern |
| Location                                                                                          | 42.7342009591337, -84.581623803903      |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-05                              |
| 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

3uLL

Signed 2019-06-05 18:12:55 UTC

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## 2019-06-05, MWBP-12A-UST1-4

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-05 17:09:00 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-05 18:03:52 UTC by Billy Cobern |
| Location                                                                                          | 42.7341663837831, -84.5815734286649     |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-05                              |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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 'bulh' with a long horizontal flourish extending to the right.

Signed 2019-06-05 17:18:33 UTC

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## 2019-06-04, P2-SB-20

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-04 18:28:34 UTC by Jessica Fransted |
| Updated                                                                                           | 2019-06-04 19:49:06 UTC by Jessica Fransted |
| Location                                                                                          | 42.7388553, -84.5848644                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-04                                  |
| 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 $h = 1$ 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                                                                                                                                                                                                                                                  | 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 "Rossie Haysted". The signature is written in a cursive style with a large, looped initial "R".

Signed 2019-06-04 18:30:37 UTC

---



## 2019-06-06, P6-SB-07

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-06-06 15:58:01 UTC by Billy Cobern |
| Updated                                                                                           | 2019-06-06 16:45:12 UTC by Billy Cobern |
| Location                                                                                          | 42.7355633117657, -84.580482188691      |
| Project Number                                                                                    | B0064479.2019                           |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-06-06                              |
| 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 $h = 1$ 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            |
| 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

*Beck*

Signed 2019-06-06 16:01:30 UTC

## 2019-06-07, PW-14-01

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-07 17:04:25 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-07 17:26:09 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.73669, -84.5855956                        |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-07                                   |
| 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 $h = 1$ 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

## 2019-06-06, PW-14-02

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 15:54:02 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 16:55:14 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.738744, -84.5860405                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 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: a stylized 'H' followed by a cursive 'P' and a trailing flourish.

Signed 2019-06-06 15:56:16 UTC

---

## 2019-06-04, PW-14-03

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 16:41:08 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-04 17:17:44 UTC by Donald Richmond |
| Location                                                                                          | 42.7421149006511, -84.5879942179514        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-04                                 |
| 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

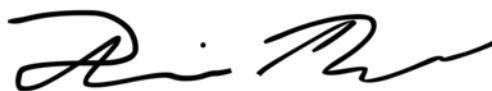
|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:00   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |

## 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                |         |



Signed 2019-06-04 17:12:53 UTC

## 2019-06-07, TW-14-02

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-07 15:24:17 UTC by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-07 15:52:31 UTC by Jake Pisarkiewicz |
| Location                                                                                          | 42.7368483, -84.5856414                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-07                                   |
| 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  $h = 1$  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                              | 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

## 2019-06-04, TW-14-06

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 14:20:09 UTC by Donald Richmond |
| Updated                                                                                           | 2019-06-04 18:59:38 UTC by Donald Richmond |
| Location                                                                                          | 42.7422041679199, -84.5879495424075        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-04                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 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 |
|---------------------|-------------|

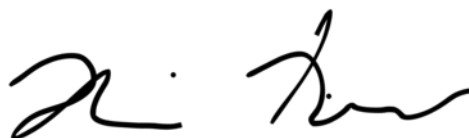
## TDS, TKN, TP, NO3, SO4

|                     |                        |
|---------------------|------------------------|
| 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

## 2019-06-12, UNK-10

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 19:30:34 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 20:00:15 UTC by Austin Westhuis |
| Location                                                                                          | 42.7450872492443, -84.5839010831756        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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 $h$ = 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)                                                                                                                                                                                                                  | 8.9           |
| 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

---



## 2019-06-12, UNK-11

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 18:43:14 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 19:17:44 UTC by Austin Westhuis |
| Location                                                                                          | 42.7451425278957, -84.5838125702781        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| 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, appearing to be 'A. H. L.', written in a cursive style.

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

## 2019-06-10, UNK-15

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 18:46:22 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 19:20:08 UTC by Austin Westhuis |
| Location                                                                                          | 42.7453332161929, -84.5840167534394        |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| 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".

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