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ENVIRONMENT

Subject:
2020 Semi-Annual Groundwater Monitoring Report
RACER Lansing - Plants 2, 3 and 6
Lansing, Michigan

Date:
October 1, 2020

Contact:
Patrick Curry

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Our ref:
30042872

Dear Ms. Matlock:

Arcadis of Michigan, LLC (Arcadis) completed the first and second quarter 2020 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 2020 event was performed from March 2 through 4, 2020 and included:

- Quarterly groundwater sampling and gauging activities at select monitoring wells.

The second quarter 2020 event was performed from June 1 through 11, 2020 and included:

- Gauging of light nonaqueous phase liquid (LNAPL) wells
- Site-wide semi-annual, annual, biennial, quadrennial, groundwater sampling and gauging activities at all monitoring wells.

All groundwater monitoring activities were completed in accordance with the Revised Interim Groundwater Monitoring Work Plan (IGMP) (Arcadis, 2019a, approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on July 25, 2019. The sampling frequencies and analytes for each well are included in **Table 1**. Deviations from the approved sampling plan include the following:

- Monitoring wells MW-12-19, MW-04(3), MW-05(3), MW-23, UNK-13, and UNK-14 were inaccessible due to a substantial amount of standing water in the area during the second quarter 2020 gauging event. The location of all site monitoring wells are provided on **Figures 1a** and **1b**.
- Monitoring wells MW-14-69 and MW-19-110 were dry during the second quarter 2020 gauging event. Monitoring well MW-19-110 was installed at the request of the EGLE in an area with limited perched groundwater with the intent of verifying whether saturated conditions existed and if the well would produce enough water for sampling. The well will next be gauged and sampled, if possible, in fourth quarter 2020. Well MW-14-69 has also been dry since installation and will be gauged again during the annual event in second quarter 2021.

SITE ACTIVITIES

During the first quarter 2020 sampling event groundwater elevations and samples were collected from a total of 41 wells as part of a quarterly event. During the second quarter, as part of the first quadrennial sampling event, groundwater elevations were collected from a total of 189 wells, LNAPL gauging was completed at a total of 22 wells, and a total of 140 wells were sampled Groundwater elevations collected are summarized on **Table 2** and LNAPL thicknesses are summarized on **Table 3.** Groundwater elevation contour maps, hydrographs and plume stability evaluation will be completed as part of the 2020 Annual Groundwater Monitoring Report submitted in second quarter 2021.

Installation of the biosparge system for the lower 1,4-dioxane plume has been completed per the *Interim Measures Work Plan: Lower 1,4-Dioxane Biosparge* work plan (Arcadis 2018a). The Plant 3 biosparge system began operating in May of 2019, and the Plant 2 biosparge system began operating on August of 2020. Performance monitoring and system construction details for the biosparge system will be submitted under separate cover.

Groundwater Sampling

During the first and second quarter sampling events, a total of 41 and 140 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, Revision 2 or SW8260C, Revision 3.
- Semi-volatile organic compounds (SVOCs) using EPA Method SW8270D (Merit).
- 1,4-Dioxane using Method SW8260B-SIM (Merit) or USEPA Method 522 for lower detection limits (Eurofins TestAmerica).

- Metals including arsenic, nickel, lead, vanadium, chromium, and copper - using Method SW6020A or USEPA Method 200.8, Revision 5.4 (Merit). Samples were submitted for dissolved and total metals analysis if turbidity could not be stabilized below 10 nephelometric turbidity units (NTUs).
- Per- and polyfluoroalkyl 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 consistent with EGLE's Remediation and Redevelopment Division (RRD) Op Memo 2, Attachment 5. Samples collected from bedrock wells for low-level 1,4-dioxane analysis were submitted under chain of custody protocol to Eurofins TestAmerica located in North Canton, Ohio for drinking water analysis using USEPA Method 522. Samples collected for 1,4-dioxane, VOCs, SVOCs, and metals analysis 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 using modified USEPA Method 537. Groundwater analytical results are summarized on **Table 4**. Groundwater low-flow sampling logs are included as **Attachment 1**. Laboratory analytical reports and data validation reports will be included in the 2020 Annual Groundwater Monitoring Report.

RESULTS

Results of the first quarter 2020 quarterly event and second quarter 2020 event, are generally consistent with previous groundwater sampling events. Results of activities completed during the first and second quarters monitoring events are summarized in the following sections.

LNAPL Gauging

LNAPL thicknesses were generally consistent with previous observations and are provided in **Table 3**. LNAPL gauging will continue semi-annually.

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 2** through **8**. Results of the first and second quarter 2020 sampling event are summarized below.

- 1,4-Dioxane results are generally consistent with the results summarized in the 2019 Annual Groundwater Monitoring Report (Arcadis, 2020). Results at the perimeter of the lower 1,4-dioxane plume were reviewed to evaluate stability:
    - Southern Extent (the toe) - During 2018, detections of 1,4-dioxane in monitoring wells MW-16-74, MW-16-75, and MW-16-77 suggested further expansion of the lower 1,4-dioxane plume toe for the first time. Second quarter 2020 monitoring were no detect at MW-16-77. A 1,4-dioxane concentration of 2 µg/L was detected in MW-16-74 and MW-16-75 (**Figure 3**). These results suggest no significant changes have occurred at the southern toe of the lower 1,4-dioxane plume

since 2018. An updated stability analysis will be completed as part of the 2020 Annual Groundwater Monitoring Report.

- Northeast Lobe (Plant 2) - Since 2018, increasing concentrations have been observed within the northeast lobe of the lower 1,4-dioxane plume at wells MW-16-85 and MW-17-86 suggesting expansion of the plume to the east-northeast:
  - MW-16-85: 1,4-Dioxane concentrations have increased from 1-7 µg/L in 2018 to 16-17 µg/L in 2019 before decreasing to 8 µg/L during June 2020.
  - MW-17-86: 1,4-Dioxane concentrations at MW-17-86 have continued to increase from 44 - 75 µg/L in 2018, to 75-90 µg/L in 2019, and 94-99 µg/L during 2020.
  - Other weathered bedrock monitoring wells located near the northeast lobe including MW-14-61 and MW-16-84, contain 1,4-dioxane concentrations generally consistent with previous results.
  - As noted, the biosparge system for the lower 1,4-dioxane plume has been constructed at Plant 2 and was started in August 2020. The operation of this system is expected to cut off further northeastern migration of the lower 1,4-dioxane plume.

- VOCs other than 1,4-dioxane exceeding DW Criteria in at least one monitoring well during this event include vinyl chloride, with sporadic exceedances of benzene; ethylbenzene; isopropyl benzene; naphthalene; 1,1-Dichloroethene; and 1,2,4-Trimethylbenzene (**Figure 4**). 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 (**Figure 5**). The metals results are consistent with previous sampling events.
- PFAS - Overall, 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, the 2019 PFAS addendum, and the 2019 Annual Groundwater Monitoring Report (Arcadis, 2018b; 2018c; 2019b; 2020).
  - Perfluorooctane sulfonic acid (PFOS) concentrations exceeded the DW Criterion of 16 nanograms per liter (ng/L) at 13 perched monitoring wells during the second quarter 2020 groundwater monitoring event and exceeded the GSI criterion of 12 ng/L at 14 perched monitoring wells (**Figure 6).**
  - Perfluorooctanoic acid (PFOA) concentrations exceeded the DW Criterion of 8 ng/L at 15 perched monitoring wells during the second quarter 2020 groundwater monitoring event (**Figure 7**).
  - Concentrations of perfluorononanoic acid (PFNA) exceed the DW Criteria value of 6 ng/L at three monitoring wells located on Plant 6 (**Figure 8**). The highest concentration of PFNA was 92.7 ng/L observed in Plant 6 source area well P6-SB-07. Other exceedances ranged from 7.7 ng/L to 13.0 ng/L.
  - The only detection of perfluorohexanesulfonic acid (PFHxS) to exceed the DW Criteria value of 51 ng/L was a concentration of 1,560 ng/L in Plant 3 source area monitoring well CH-14-RO.

  - Sporadic low detections of perfluorobutanesulfonic acid (PFBS) and perfluorohexanoic acid (PFHxA) observed in monitoring wells during the second quarter groundwater monitoring event are below the DW Criteria values of 420 ng/L for PFBS and 400,000 ng/L for PFHxA.
  - In addition to PFOS, PFOA, PFNA, PFHxS, PFHxA, and PFBS, other PFAS compounds have been detected at the Site, however there are no established criteria for comparison. In general, these concentrations appear to correlate to PFOS and PFOA concentrations and decrease with distance from PFOS and PFOA source areas.

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 maximum PFOS concentrations of 78.2 ng/L and 38.1 ng/L respectively, exceeding the DW criterion of 16 ng/L and the GSI criterion of 12 ng/L. Both well locations had PFNA detections below criteria. All six 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-18-105*, off-site perched monitoring well located to the east of Plant 3 contained a concentration of PFOS (12.4 ng/L) which exceeded the GSI criterion of 12 ng/L. The result for MW-18-105 is consistent with previous results summarized in the 2019 Plant 3 PFAS Addendum and 2019 Annual Groundwater Monitoring Report (Arcadis 2019b, 2020).
- *MW-12-12 and MW-13-36R*, located along the eastern boundary of Plant 6, contained concentrations of PFOS, PFOA and PFNA which exceed the DW criteria of 16 ng/L, 8 ng/L, and 6 ng/l respectively, as well as PFOS exceeding the GSI criterion of 12 ng/L. Nearby wells located along the eastern boundary of Plant 6 – MW-14-67 (11.9 ng/L), MW-14-70 (42.8 ng/L), and MW-04-05(6) (23.9 ng/L) – all contained PFOA at a concentration exceeding DW. 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). Installation of additional monitoring wells is planned at the perimeter of Plant 6 and off-site to facilitate long term monitoring for PFAS.
- *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 0.185 milligrams per liter (mg/L; DW criterion: 0.10 mg/L) during the second quarter of 2020. Groundwater elevations 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 0.005 mg/L, exceeding the DW criteria of 0.0045 mg/L. This result is consistent with previous analytical results for MW-13-36R (down from 0.009 mg/L in 2019). As outlined in the 2019 Annual Groundwater Monitoring Report (Arcadis, 2020), an evaluation of the plume stability indicates that metals at the Site are stable and are spatially limited.

- *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 12 µg/L during June 2020, exceeding the DW criteria of 7.2 µg/L. This result is consistent with previous concentrations observed in MW-14-56 (10 µg/L in 2019). 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 former Adams Plating Company Site (APC Site).
- *MW-14-58*. The concentration of 1,4-dioxane in MW-14-58, located in the perched zone was 38 µg/L during the monitoring period, consistent with previous analytical results (down from 59 µg/L in 2019). 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 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 10 µg/L during the second quarter 2020 event. This result is consistent with previous concentrations, which have ranged from 4 to 11 µg/L since 2018. 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 semi-annually.
- *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/L (consistent with the detection of 0.012 mg/L in 2019), exceeding the DW criteria of 0.01 mg/L. MWBP-10-UST5-6 is screened in a confined sand unit at approximately 30 feet bgs. 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.
- *MWBP-11-UST1-4 and MWBP-12-UST1-4*. Both monitoring wells are located in the perched zone on southern Plant 6 and were sampled for metals as part of the second quarter biennial sampling event. Arsenic was detected at a concentration of 0.012 mg/L in MWBP-11-UST1-4, exceeding the DW criterion of 0.01 mg/L. Vanadium was detected at a concentration of 0.010 mg/L in MWBP-12-UST1-4, above the DW criterion of 0.0045 mg/L. These metals may be related to reducing conditions created by the historical impacts associated with the USTs in the area. These wells will continue to be monitored biennially.

CONCLUSIONS

The first quarter and second quarter 2020 monitoring results do not suggest significant changes to the Site groundwater conditions. Monitoring will continue during the third and fourth quarters of 2020 per the approved revised Interim Groundwater Monitoring Plan matrix (Arcadis, 2019a). The 2020 Annual Groundwater Monitoring Report will be prepared following the fourth quarter sampling event and will include a summary of all 2020 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 (734.879.9525) or Patrick Curry 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 Cosman, Ingham County Drain Commission
Lansing Public Library

Enclosures:

Tables

1 RACER 2019 Revised IGMP Sampling Matrix
2 Summary of Groundwater Elevations – January 2020 to June 2020
3 Summary of LNAPL Thickness – January 2020 to June 2020
4 Summary of Groundwater Analytical Results – January 2020 to June 2020

Figures

1 a - Monitoring Well Locations – Plants 2 & 6
1 b – Monitoring Well Locations – Plant 3
2 Shallow - 1,4-Dioxane Analytical Results - 2020
3 Lower - 1,4-Dioxane Analytical Results - 2020
4 VOCs Analytical Results - 2020
5 Metals Analytical Results - 2020
6 PFOS Analytical Results – 2020
7 PFOA Analytical Results - 2020
8 PFNA Analytical Results - 2020

Attachments

1 First and Second Quarter 2020 Low-Flow 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, 2018a. Interim Measures Work Plan: Lower 1,4-Dioxane Biosparge. October 19, 2018.

Arcadis. 2018b. 2018 Plant 3 PFAS Investigation Summary Report. RACER Trust Plant 3, Lansing, Michigan. November 2.

Arcadis. 2018c. 2018 Plants 2 and 6 PFAS Monitoring Well Sampling Memo. RACER Trust Plants 2 and 6, Lansing, Michigan. September 14.

Arcadis. 2019a. Revised Interim Groundwater Monitoring Work Plan - 2019. RACER Trust, Lansing, Michigan, Plants 2, 3, and 6. October 28.

Arcadis. 2019b. 2019 Plant 3 PFAS Addendum. RACER Trust Plant 3, Lansing, Michigan. July 24.

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, 2020. 2019 Annual Groundwater Monitoring Report. RACER Trust Plants 2, 3, and 6. Lansing, Michigan. May 4.

TABLES

Table 1
Revised Interim Groundwater Monitoring Summary - Plant 2

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

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

Notes:

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

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

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

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

M = Monthly

Q = Quarterly

SA = Semi-annual

A = Annual

B = Biennial (starting 2nd quarter of 2020)

Qd = Quadrennial

Table 1
Revised Interim Groundwater Monitoring Summary - Plant 3

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

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

Notes:

* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.
** Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.
(1) - Analyzed for 1,4-dioxane via low-level USEPA Method 522
Q = quarterly
SA = semi-annual
A = annual
B = biennial (starting 2nd quarter of 2020)
Qd = Quadrennial

Table 1
Revised Interim Groundwater Monitoring Summary - Plant 6

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

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

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

Table 2
Groundwater Elevations, January to June 2020
2020 Semi-Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
LMW-12-01	6/1/2020	7	12	864.91	862.14	14.77	8.61	856.30
LMW-12-02	6/1/2020	5	10	865.25	862.17	12.90	7.09	858.16
LMW-12-03D	6/1/2020	17.3	22.3	864.99	862.08	NM	10.41	854.58
LMW-12-03S	6/1/2020	4	9	864.93	862.06	11.75	8.16	856.77
LMW-12-05	6/1/2020	7	12	865.03	862.17	NM	10.17	854.86
LMW-12-06	6/1/2020	4	9	865.02	862.15	NM	7.18	857.84
LMW-12-07	6/1/2020	4	9	864.13	861.50	NM	5.62	858.51
LMW-12-08	6/1/2020	8	13	864.40	861.56	NM	8.22	856.18
LMW-14-12D	6/1/2020	18	23	864.59	862.11	NM	9.89	854.70
LMW-14-14D	6/1/2020	18	23	864.89	861.90	24.92	11.78	853.11
LMW-14-15D	6/1/2020	18	23	865.11	861.66	22.62	NM	NM
LMW-15-16D	6/1/2020	19.5	24.5	865.20	862.24	27.10	12.36	852.84
LMW-15-17D	6/1/2020	20	25	865.21	862.24	NM	10.13	855.08
MW-01(2)	6/1/2020	10	20	875.79	876.10	NM	7.04	868.75
MW-12-01	6/1/2020	87	110	867.94	865.46	95.00	67.89	800.05
MW-12-02	6/1/2020	87	110	853.91	851.88	96.50	58.61	795.30
MW-12-05R	6/1/2020	100	112	864.79	862.30	NM	66.96	797.83
MW-12-06	6/1/2020	80.6	99.5	864.64	861.69	88.50	65.99	798.65
MW-12-07	6/1/2020	10	15	872.11	869.21	17.74	6.79	865.32
MW-12-08	6/1/2020	19	24	864.53	861.55	27.20	3.62	860.91
MW-12-09	6/1/2020	14	19	863.54	860.63	22.60	13.49	850.05
MW-12-18	6/1/2020	28	33	866.43	864.19	34.80	22.66	843.77
MW-13-43	6/1/2020	72	77	863.82	860.97	79.80	63.33	800.49
MW-13-44	6/1/2020	96	115	864.24	861.03	122.10	63.32	800.92
MW-13-45	6/1/2020	72	77	863.80	861.54	79.50	63.89	799.91
MW-13-51	6/1/2020	77	87	875.34	872.51	91.10	69.00	806.34
MW-14-54	6/1/2020	14	19	865.21	862.21	19.04	12.50	852.71
MW-14-55	6/1/2020	13	18	864.17	861.73	20.10	15.77	848.40
MW-14-56	6/1/2020	71	76	863.27	860.56	NM	63.05	800.22
MW-14-57	6/1/2020	15	20	863.97	861.10	21.40	12.69	851.28
MW-14-58	6/1/2020	22	27	863.12	860.12	NM	13.87	849.25
MW-14-59	6/1/2020	12	17	864.61	861.80	NM	7.38	857.23
MW-14-60	6/1/2020	15	20	864.65	861.80	NM	11.84	852.81
MW-14-61	3/2/2020	70	75	865.51	862.30	77.49	64.35	801.16
MW-14-61	6/1/2020	70	75	865.51	862.30	NM	64.34	801.17
MW-14-62	6/1/2020	12	17	865.17	862.25	NM	5.16	860.01
MW-14-63	6/1/2020	68	73	854.64	851.68	78.10	58.28	796.36
MW-15-72	3/2/2020	63	68	865.09	862.35	70.33	57.18	807.91
MW-15-72	6/1/2020	63	68	865.09	862.35	NM	57.58	807.51
MW-15-73	6/1/2020	78	83	861.56	859.12	82.00	63.60	797.96
MW-16-74	3/2/2020	66	71	864.81	862.10	73.69	62.85	801.96
MW-16-74	6/1/2020	66	71	864.81	862.10	75.30	62.91	801.90
MW-16-75	6/1/2020	66	71	864.87	862.13	74.90	59.43	805.44
MW-16-76	6/1/2020	70	75	867.76	865.12	83.50	61.84	805.92
MW-16-77	6/1/2020	66	71	866.17	863.42	75.20	58.86	807.31
MW-16-78	6/1/2020	68	73	864.98	862.09	77.00	61.61	803.37
MW-16-79	6/1/2020	68	73	864.80	862.07	77.20	63.02	801.78
MW-16-80	6/1/2020	68	73	853.03	853.41	74.90	56.03	797.00

See Notes on last page.

Table 2
Groundwater Elevations, January to June 2020
2020 Semi-Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

ARCADIS Design & Consultancy for natural and built assets

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 2								
MW-16-81	3/2/2020	70	75	864.68	862.04	77.28	62.84	801.84
MW-16-81	6/1/2020	70	75	864.68	862.04	NM	62.86	801.82
MW-16-82	6/1/2020	70	75	864.79	862.10	78.50	63.81	800.98
MW-16-84	3/2/2020	72	77	864.09	861.81	81.18	64.96	799.13
MW-16-84	6/1/2020	72	77	864.09	861.81	82.70	64.98	799.11
MW-16-85	6/1/2020	74	79	864.77	861.87	83.10	65.90	798.87
MW-17-86	3/2/2020	73	78	864.55	861.92	81.44	63.35	801.20
MW-17-86	6/1/2020	73	78	864.55	861.92	82.50	63.37	801.18
MW-17-87	6/1/2020	100	112	862.82	860.44	117.00	65.09	797.73
MW-19-115	3/2/2020	72.5	77.5	865.04	862.19	80.41	57.35	807.69
MW-19-115	6/1/2020	72.5	77.5	865.04	862.19	81.50	57.64	807.40
MW-19-116	3/2/2020	65	70	865.12	862.17	73.20	57.19	807.93
MW-19-116	6/1/2020	65	70	865.12	862.17	74.80	57.44	807.68
MW-19-117	3/2/2020	54	59	865.10	862.15	62.89	59.78	805.32
MW-19-117	6/1/2020	54	59	865.10	862.15	63.00	59.93	805.17
MW-19-118D	3/2/2020	175	190	862.78	859.80	193.00	66.30	796.48
MW-19-118D	6/1/2020	175	190	862.78	859.80	197.00	66.58	796.20
MW-19-118S	3/2/2020	145	160	862.81	859.80	163.00	66.30	796.51
MW-19-118S	6/1/2020	145	160	862.81	859.80	165.00	66.58	796.23
MW-19-120	3/2/2020	66	71	864.67	862.13	74.01	63.46	801.21
MW-19-120	6/1/2020	66	71	864.67	862.13	45.50	63.49	801.18
MW-19-121	3/2/2020	66	71	864.52	862.19	73.69	62.57	801.95
MW-19-121	6/1/2020	66	71	864.52	862.19	75.00	62.66	801.86
MW-19-122	3/2/2020	59	64	865.02	862.15	67.00	62.45	802.57
MW-19-122	6/1/2020	59	64	865.02	862.15	67.00	62.45	802.57
MW-19-123	3/2/2020	66	71	864.45	862.04	74.00	59.89	804.56
MW-19-123	6/1/2020	66	71	864.45	862.04	74.00	59.93	804.52
MW-19-124	6/5/2020	65	70	864.53	862.22	73.90	62.79	801.74
MW-19-125	3/2/2020	100	115	865.19	862.16	109.00	68.28	796.91
MW-19-125	6/1/2020	100	115	865.19	862.16	109.50	68.28	796.91
P2-MW-02	6/1/2020	31	41	872.24	872.70	40.25	36.95	835.29
P2-MW-03	6/1/2020	27	32	854.18	854.66	NM	8.63	845.55
P2-SB-03	6/1/2020	14	19	863.89	861.03	22.11	15.71	848.18
P2-SB-06	6/1/2020	24	29	866.06	862.09	NM	17.57	848.49
P2-SB-20	6/1/2020	8	13	864.46	861.12	NM	8.82	855.64
P2-SB-37	6/1/2020	5	10	865.90	861.90	NM	6.12	859.78
PMW-01	6/1/2020	2.59	7.59	860.85	861.33	NM	1.91	858.94
PMW-02	6/1/2020	2.59	7.59	860.94	861.33	NM	1.33	859.61
PMW-03	6/1/2020	1.2	6.2	861.59	862.12	NM	1.64	859.95
PW-14-01	6/1/2020	71.6	76.8	864.97	862.38	89.40	61.04	803.93
PW-14-02	6/1/2020	75	80	863.87	860.93	91.20	63.16	800.71
TW-14-02	3/2/2020	67	72	865.01	862.13	87.34	63.20	801.81
TW-14-02	6/1/2020	67	72	865.01	862.13	75.20	59.39	805.62
TW-15-12	3/2/2020	73	78	860.88	861.23	80.02	63.40	797.48
TW-15-12	6/1/2020	73	78	860.88	861.23	78.00	60.19	800.69

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Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Groundwater Elevation (feet msl)
Plant 3								
CH-14-RO	6/1/2020	7	12	866.44	863.68	NM	6.79	859.65
LMW-12-09	6/1/2020	3	8	863.22	860.40	NM	3.31	859.91
LMW-12-10	6/1/2020	14	19	866.82	863.60	NM	11.49	855.33
LMW-12-11	6/1/2020	15	20	866.53	863.53	NM	10.70	855.83
MW-02-01(3)	6/1/2020	59	69	865.54	863.35	72.50	52.81	812.73
MW-02-02(3)	6/1/2020	74	84	862.70	863.11	84.50	58.20	804.50
MW-02-03(3)	6/1/2020	79	89	859.63	859.90	90.10	55.91	803.72
MW-02-04(3)	6/1/2020	76	86	859.41	859.96	NM	56.10	803.31
MW-04(3)	6/1/2020	10.5	15.5	859.40	859.79	NM	NM	NM
MW-04-02(3)	6/1/2020	126	136	861.09	861.26	134.00	58.34	802.75
MW-04-03(3)	6/1/2020	80	90	860.72	861.00	88.40	57.15	803.57
MW-04-04(3)	6/1/2020	72	82	855.72	856.11	82.00	52.24	803.48
MW-05(3)	6/1/2020	10	15	859.02	859.79	NM	NM	NM
MW-12-04	6/2/2020	77	100	844.08	844.26	102.00	42.61	801.47
MW-12-19	6/1/2020	5	10	859.55	859.96	NM	NM	NM
MW-12-20	6/1/2020	75	80	864.20	861.45	NM	60.56	803.64
MW-12-21	6/1/2020	70	75	864.50	861.45	NM	61.63	802.87
MW-13-22	3/2/2020	89	94	864.37	861.50	96.00	62.49	801.88
MW-13-22	6/1/2020	89	94	864.37	861.50	NM	62.55	801.82
MW-13-23	6/1/2020	69	74	864.31	861.45	NM	64.10	800.21
MW-13-24	6/1/2020	69	74	864.35	861.48	NM	60.10	804.25
MW-13-25	6/1/2020	67	72	863.77	860.49	NM	63.63	800.14
MW-13-26	6/1/2020	72	77	863.95	861.67	NM	59.46	804.49
MW-13-27	6/2/2020	67	72	864.50	861.54	77.20	64.13	800.37
MW-13-28	6/1/2020	99	115.5	864.42	861.61	118.68	63.39	801.03
MW-13-29	6/1/2020	68	73	862.81	859.81	NM	62.88	799.93
MW-13-30	6/1/2020	72	77	864.53	861.66	NM	61.84	802.69
MW-13-31	6/1/2020	5	10	861.27	858.36	NM	6.33	854.94
MW-13-32	6/1/2020	5	10	860.11	857.32	NM	5.15	854.96
MW-13-34	6/1/2020	74	79	853.92	851.82	80.68	57.35	796.57
MW-13-36R	3/2/2020	5.5	10.5	878.04	875.28	12.70	4.25	873.79
MW-13-36R	6/1/2020	5.5	10.5	878.04	875.28	12.60	5.20	872.84
MW-13-37	6/2/2020	97	112	866.02	863.75	117.50	64.21	801.81
MW-13-38	6/2/2020	107	124	866.47	863.71	128.00	65.05	801.42
MW-13-39B	6/1/2020	97	112	860.20	857.33	101.10	59.04	801.16
MW-13-40	6/1/2020	72	77	862.95	859.74	NM	53.95	809.00
MW-13-41	6/1/2020	77	82	866.38	863.68	NM	57.19	809.19
MW-13-46	6/1/2020	68	73	854.54	852.12	75.65	56.67	797.87
MW-13-47	6/1/2020	99	119	853.74	851.89	115.20	56.73	797.01
MW-13-48	6/1/2020	65	70	854.83	852.17	74.11	55.29	799.54
MW-13-49	6/2/2020	73	78	853.01	850.55	NM	57.15	795.86
MW-14-64	6/2/2020	98.6	103.6	864.56	861.77	107.20	62.40	802.16
MW-14-65	6/1/2020	5	10	866.34	863.71	NM	6.47	859.87
MW-15-71	6/1/2020	110	115	864.56	861.58	118.91	61.05	803.51
MW-18-88	6/1/2020	6	11	863.70	860.93	NM	4.83	858.87
MW-18-89	3/2/2020	7	12	866.53	863.51	15.60	7.76	858.77
MW-18-89	6/1/2020	7	12	866.53	863.51	NM	6.02	860.51
MW-18-90	3/2/2020	15	20	866.32	863.25	23.15	9.83	856.49
MW-18-90	6/1/2020	15	20	866.32	863.25	NM	9.32	857.00

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Plant 3								
MW-18-91	6/1/2020	7	12	865.94	863.43	NM	5.50	860.44
MW-18-92	6/1/2020	23	28	870.43	869.08	NM	12.63	857.80
MW-18-93	6/1/2020	77.3	82.3	863.77	860.99	NM	49.94	813.83
MW-18-94	6/1/2020	72	77	866.34	863.86	NM	54.85	811.49
MW-18-95	3/2/2020	4.5	9.5	864.66	861.76	12.45	6.76	857.90
MW-18-95	6/1/2020	4.5	9.5	864.66	861.76	NM	6.60	858.06
MW-18-96	6/1/2020	7	12	864.60	861.64	NM	13.20	851.40
MW-18-97	6/1/2020	85	90	860.91	859.13	NM	58.16	802.75
MW-18-98	3/2/2020	7	12	862.16	859.10	14.90	4.51	857.65
MW-18-98	6/1/2020	7	12	862.16	859.10	NM	5.74	856.42
MW-18-99	3/2/2020	9	14	862.47	859.95	16.85	6.25	856.22
MW-18-99	6/1/2020	9	14	862.47	859.95	NM	4.11	858.36
MW-18-100	6/1/2020	8	13	863.94	861.49	NM	9.48	854.46
MW-18-101	6/1/2020	80	85	863.87	861.24	NM	59.71	804.16
MW-18-102	6/1/2020	10	15	863.13	863.44	NM	7.45	855.68
MW-18-103	3/3/2020	5	10	859.13	859.74	10.70	0.72	858.41
MW-18-103	6/1/2020	5	10	859.13	859.74	10.80	1.75	857.38
MW-18-104	6/1/2020	5	10	859.12	859.82	NM	1.72	857.40
MW-18-105	3/3/2020	6	11	858.59	859.01	NM	0.00	858.59
MW-18-105	6/1/2020	6	11	858.59	859.01	11.20	0.93	857.66
MW-18-106	6/1/2020	5	10	866.15	866.51	NM	2.91	863.24
MW-19	6/1/2020	55	65	859.74	859.92	65.00	46.45	813.29
MW-19-107	6/1/2020	23	28	870.65	869.20	NM	14.47	856.18
MW-19-108	6/1/2020	23	28	872.60	870.22	NM	13.02	859.58
MW-19-110	6/1/2020	8	13	863.67	860.72	16.24	DRY	DRY
MW-19-111	6/1/2020	20	25	874.51	871.70	NM	19.09	855.42
MW-19-112	6/1/2020	9	14	861.63	858.53	NM	6.32	855.31
MW-19-113	6/1/2020	16	21	860.67	857.73	NM	23.52	837.15
MW-19-114	6/1/2020	6	11	861.25	861.79	NM	1.85	859.40
MW-19-119D	3/2/2020	145	160	864.42	861.66	199.00	74.20	790.22
MW-19-119D	6/2/2020	145	160	864.42	861.66	199.40	74.88	789.54
MW-19-119S	3/2/2020	180	195	864.32	861.66	163.00	63.44	800.88
MW-19-119S	6/2/2020	180	195	864.32	861.66	164.70	62.90	801.42
MW-22	6/1/2020	52.5	62.5	859.69	860.08	64.00	47.32	812.37
MW-23	6/1/2020	52	62	859.45	859.76	NM	NM	NM
MW-88-1	6/1/2020	103.5	140	858.75	859.06	138.60	60.92	797.83
MW-91-2R	6/1/2020	75	80	866.84	863.63	NM	57.54	809.30
MW-91-3	6/1/2020	105	117	860.81	859.35	120.00	61.81	799.00
MW-91-4	6/1/2020	116	132.5	855.59	855.93	132.00	53.90	801.69
MW-91-5	6/2/2020	112.5	128	860.61	861.20	128.54	56.82	803.79
MW-91-6	6/2/2020	82	98	851.84	852.22	97.60	53.77	798.07
MW-93-1	6/1/2020	65	75	866.05	863.56	71.00	60.40	805.65
P3-SB-07	6/1/2020	11	16	866.84	863.63	NM	8.08	858.76
P3-SB-28	6/1/2020	8	13	866.43	863.63	NM	5.53	860.90
PW-14-03	3/2/2020	85	90	864.31	861.55	95.00	64.23	800.08
PW-14-03	6/1/2020	85	90	864.31	861.55	100.21	65.10	799.21
TW-14-06	3/2/2020	82	87	864.30	861.50	86.50	54.90	809.40
TW-14-06	6/1/2020	82	87	864.30	861.50	88.19	64.72	799.58
TW-15-11	3/2/2020	85	90	864.51	861.60	87.00	63.79	800.72

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Plant 3								
TW-15-11	6/1/2020	85	90	864.51	861.60	87.05	64.93	799.58
UNK-10	6/1/2020	11	16	859.34	860.05	NM	0.05	859.29
UNK-11	6/1/2020	6.5	11.5	859.91	860.17	NM	0.65	859.26
UNK-13	6/1/2020	11	16	859.11	859.91	NM	NM	NM
UNK-14	6/1/2020	10.4	15.4	859.32	859.70	NM	NM	NM
UNK-15	3/2/2020	11	16	859.56	859.94	15.65	0.39	859.17
UNK-15	6/1/2020	11	16	859.56	859.94	NM	0.56	859.00
UNK-15	6/5/2020	11	16	859.56	859.94	NM	0.50	859.06
Plant 6								
MW-02-03(6)	6/1/2020	35	45	869.54	869.97	44.80	28.06	841.48
MW-03-02	6/1/2020	30	40	864.52	864.76	39.67	21.55	842.97
MW-03-04	6/1/2020	33	43	865.28	865.53	42.81	22.00	843.28
MW-03-05	6/1/2020	35	45	868.90	869.14	48.51	23.23	845.67
MW-03-06	6/1/2020	30	40	870.45	870.80	41.00	36.05	834.40
MW-03-07	6/8/2020	30	40	866.88	867.02	41.00	25.84	841.04
MW-03-08	6/1/2020	35	45	869.03	869.39	45.10	33.19	NM
MW-04-01(6)	6/1/2020	78	88	866.85	867.15	89.31	65.58	801.27
MW-04-04R	6/1/2020	82	110	873.31	870.64	113.00	71.75	801.56
MW-04-05(6)	6/1/2020	20	30	858.33	858.87	29.60	9.69	848.64
MW-04-06R	6/1/2020	74	99.5	861.56	858.59	79.80	60.95	800.61
MW-12-03	6/1/2020	57	80	859.10	856.71	85.05	58.98	800.12
MW-12-10R	6/1/2020	10	15	862.29	858.92	18.01	10.62	851.67
MW-12-11	6/1/2020	13	18	857.26	857.68	16.80	3.20	854.06
MW-12-12	3/2/2020	13	18	874.34	874.61	17.20	7.08	867.26
MW-12-12	6/1/2020	13	18	874.34	874.61	17.20	5.00	869.34
MW-12-13	3/2/2020	18.5	23.5	882.60	880.51	25.50	9.32	873.28
MW-12-13	6/1/2020	18.5	23.5	882.60	880.51	25.50	9.75	872.85
MW-12-14	6/1/2020	25	30	872.56	869.28	32.10	23.66	848.90
MW-12-16	6/1/2020	28	33	864.24	864.73	32.40	22.30	841.94
MW-13-50	6/1/2020	85	107	872.85	869.93	113.00	71.75	801.10
MW-13-52	6/1/2020	70	80	872.50	869.84	82.30	67.15	805.35
MW-13-53	6/1/2020	73	83	875.56	873.10	86.10	70.40	805.16
MW-14-66	6/1/2020	14	19	877.85	874.73	22.22	4.65	873.20
MW-14-67	3/2/2020	13	18	877.76	875.07	20.80	4.56	873.20
MW-14-67	6/1/2020	13	18	877.76	875.07	20.80	4.82	872.94
MW-14-68	6/1/2020	36	41	878.44	875.42	44.30	44.05	834.39
MW-14-69	6/1/2020	41	46	883.62	880.72	49.00	DRY	DRY
MW-14-70	3/2/2020	16	21	882.79	880.08	23.10	9.51	873.28
MW-14-70	6/1/2020	16	21	882.79	880.08	23.10	9.93	872.86
MWBP-10-UST5-6	6/1/2020	28	38	867.70	867.99	37.04	29.47	838.23
MWBP-11-UST1-4	6/1/2020	9	19	868.66	869.07	11.21	1.17	867.49
MWBP-12-UST1-4	6/1/2020	15	25	870.02	870.58	11.40	1.82	868.20
P6-MW-01	6/1/2020	23	28	870.10	866.87	31.20	28.00	842.10
P6-SB-07	3/2/2020	15	20	877.36	874.36	23.60	5.14	872.22
P6-SB-07	6/1/2020	15	20	877.36	874.36	23.60	5.69	871.67
P6-SB-18	6/1/2020	3	8	878.46	874.60	12.15	5.00	873.46
P6-SB-21	6/1/2020	3	8	874.20	870.92	11.13	2.84	871.36
P6-SB-35	6/1/2020	3	8	877.76	874.28	12.01	4.38	873.38
P6-SB-37	6/1/2020	5	10	878.12	874.32	13.90	4.62	873.50

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Notes:
* Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.
bgs = below ground surface
LNAPL = light nonaqueous phase liquid
msl = mean sea level
NM = not collected or not available
NS = not surveyed
RACER = Revitalizing Auto Communities Environmental Response
TOC = top of casing 6/1/2020

Table 3
LNAPL Thickness, June 2020
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Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)
Plant 2								
LMW-12-01	6/1/2020	864.91	862.14	14.77	8.61	NP	NP	856.30
LMW-12-02	6/1/2020	865.25	862.17	12.9	7.09	NP	NP	858.16
LMW-12-03D	6/1/2020	864.99	862.08	NM	17.16	9.66	7.5	847.83
LMW-12-03S	6/1/2020	864.93	862.06	NM	8.17	8.16	0.01	856.76
LMW-12-05	6/1/2020	865.03	862.17	NM	10.24	10.16	0.08	854.79
LMW-12-06	6/1/2020	865.02	862.15	NM	7.19	7.18	0.01	857.83
LMW-12-07	6/1/2020	864.13	861.50	NM	5.63	5.62	0.01	858.50
LMW-12-08	6/1/2020	864.40	861.56	NM	9.02	8.13	0.89	855.38
LMW-14-12D	6/1/2020	864.59	862.11	NM	24.92	8.21	16.71	839.67
LMW-14-14D	6/1/2020	864.89	861.90	24.92	11.78	NP	NP	853.11
LMW-14-15D	6/1/2020	865.11	861.66	22.62	NM	9.23	NM	NM
LMW-15-16D	6/1/2020	865.20	862.24	27.10	27.09	10.71	16.38	838.11
LMW-15-17D	6/1/2020	865.21	862.24	NM	10.14	10.13	0.01	855.07
P2-SB-37	6/1/2020	865.90	861.90	NM	6.86	6.04	0.82	859.04
PMW-01	6/1/2020	860.85	861.33	NM	3.86	1.69	2.17	856.99
PMW-02	6/1/2020	860.94	861.33	NM	1.36	1.33	0.03	859.58
PMW-03	6/1/2020	861.59	862.12	NM	1.69	1.21	0.48	859.90
Plant 3								
LMW-12-09	6/1/2020	863.22	860.40	NM	3.33	3.31	0.02	859.89
LMW-12-10	6/1/2020	866.82	863.60	NM	14.91	11.11	3.8	851.91
LMW-12-11	6/1/2020	866.53	863.53	NM	10.72	10.7	0.02	855.81
UNK-13	6/1/2020	859.11	859.91	NM	NM	NP	NP	NM
UNK-14	6/1/2020	859.32	859.70	NM	NM	NP	NP	NM

Notes:
LNAPL = light nonaqueous phase liquid
msl = mean sea level
NAPL = nonaqueous phase liquid
NM = not measured
NP = no product
TOC = top of casing
RACER = Revitalizing Auto Communities Environmental Response
*Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		CH-14-RO	MW-01(2)	MW-02-02(3)	MW-02-03(6)	MW-02-04(3)	MW-03-05	MW-03-06	MW-03-07	MW-03-08	MW-03-08	MW-04-01(6)	MW-04-04R	MW-04-05(6)	MW-04-06R	MW-05(3)	MW-12-01	MW-12-02	MW-12-05R
Date Collected:	(DEQ2018)	(DEQ2018)	Units	06/08/20	06/10/20	06/11/20	06/03/20	06/08/20	06/03/20	06/02/20	06/08/20	06/03/20	06/09/20	06/02/20	06/03/20	06/03/20	06/03/20	06/08/20	06/05/20	06/04/20	06/05/20
Sample Name:				CH-14-RO_060820	MW-01(2)_061020	MW-02-02(3)_061120	MW-02-03(6)_060320	MW-02-04(3)_060820	MW-03-05_060320	MW-03-06_060220	MW-03-07_060820	MW-03-08_060320	MW-03-08_060920	MW-04-01(6)_060220	MW-04-04R_060320	MW-04-05(6)_060320	MW-04-06R_060320	MW-05(3)_060820	MW-12-01_060520	MW-12-02_060420	MW-12-05R_060520
Field																					
Conductance, specific	- -	- -	mS/cm	0.79	4.31	4.88	7.34	5.41	2.6	10.29	1.34	2.45	2.05	0.92	1.64	4.25	5.4	0.18	1.9	1.21	1.66
Dissolved oxygen (DO)	- -	- -	mg/L	0.42	0.78	0.01	9.65	0.01	6.32	0.33	0.58	0.73	0.02	0.35	2.65	0.43	0.12	1.35	0.69	1.42	5.68
Oxidation reduction potential (ORP), field	- -	- -	millivolts	63.2	-17.4	37.6	-99.3	-36	-104.1	-55.5	-100.9	-110.5	-84.7	-50.1	-65.5	-85.6	-264.5	-60.8	-32.4	-68.4	-177.8
pH	- -	- -	s.u.	7.11	6.86	6.36	7.5	6.75	7.72	6.84	7.22	7.27	7.02	7.04	6.97	7.25	7.51	10.22	7.16	6.95	7.19
Temperature, field	- -	- -	Deg C	19.4	19.2	14.4	15.1	14.3	13.2	14.7	16.1	14.5	13.4	15.5	20.1	16.4	16.1	21.5	15.6	14.2	19.7
Turbidity (field)	- -	- -	NTU	0.02	0.02	1.74	384	2.7	20.1	0.72	0.02	46.8	1.78	0.02	3.21	0.8	9.12	12	9.57	93.4	13.4
Volatile Organics																					
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	<2	NA	<2	NA	<2	<2	NA	<2	NA	NA	NA	NA	NA	<2	NA	NA	NA
Bromobenzene	18	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Dibromomethane	80	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	<10	NA	<10	NA	<10	<10	NA	<10	NA	NA	NA	NA	NA	<10	NA	NA	NA
Iodomethane	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	<90	NA	<90	NA	<90	<90	NA	<90	NA	NA	NA	NA	NA	<90	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	<1	**15**	**3**	<1	**5**	NA	NA	NA	<1	<1 [<1]	NA	<1	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	<50	NA	<50	NA	<50	<50	NA	<50	NA	NA	NA	NA	NA	<50	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Acetone	730	1,700	ug/L	NA	<50	NA	<50	NA	<50	<50	NA	<50	NA	NA	NA	NA	NA	<50	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromoform	80	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Carbon disulfide	800	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chlorobenzene	100	25	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Trichloroethene	5.0	200	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	<1	NA	<1	NA	<1	**12**	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Chloroethane	430	1,100	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Benzene	5.0	200	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Methylene chloride	5	1,500	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Styrene	100	80	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Toluene	790	270	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	**12**	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Naphthalene	520	11	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	<25	NA	<25	NA	<25	<25	NA	<25	NA	NA	NA	NA	NA	<25	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	<50	NA	<50	NA	<50	<50	NA	<50	NA	NA	NA	NA	NA	<50	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
Isopropyl benzene	800	28	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA
o-Xylene	- -	- -	ug/L	NA	<1	NA	<1	NA	<1	<1	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	<2	NA	<2	NA	<2	<2	NA	<2	NA	NA	NA	NA	NA	<2	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	<5	NA	<5	NA	<5	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		CH-14-RO	MW-01(2)	MW-02-02(3)	MW-02-03(6)	MW-02-04(3)	MW-03-05	MW-03-06	MW-03-07	MW-03-08	MW-03-08	MW-04-01(6)	MW-04-04R	MW-04-05(6)	MW-04-06R	MW-05(3)	MW-12-01	MW-12-02	MW-12-05R
Date Collected:	(DEQ2018)	(DEQ2018)	Units	06/08/20	06/10/20	06/11/20	06/03/20	06/08/20	06/03/20	06/02/20	06/08/20	06/03/20	06/09/20	06/02/20	06/03/20	06/03/20	06/03/20	06/03/20	06/08/20	06/05/20	06/04/20	06/05/20
Sample Name:				CH-14-RO_060820	MW-01(2)_061020	MW-02-02(3)_061120	MW-02-03(6)_060320	MW-02-04(3)_060820	MW-03-05_060320	MW-03-06_060220	MW-03-07_060820	MW-03-08_060320	MW-03-08_060920	MW-04-01(6)_060220	MW-04-04R_060320	MW-04-05(6)_060320	MW-04-06R_060320	MW-05(3)_060820	MW-12-01_060520	MW-12-02_060420	MW-12-05R_060520
Semivolatile Organics																					
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.20	**0.65**	**0.16 J**
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	ug/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4
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Location ID:	P201 RES DW	P201 GSI	Units	CH-14-RO	MW-01(2)	MW-02-02(3)	MW-02-03(6)	MW-02-04(3)	MW-03-05	MW-03-06	MW-03-07	MW-03-08	MW-03-08	MW-04-01(6)	MW-04-04R	MW-04-05(6)	MW-04-06R	MW-05(3)	MW-12-01	MW-12-02	MW-12-05R
Date Collected:	(DEQ2018)	(DEQ2018)		06/08/20	06/10/20	06/11/20	06/03/20	06/08/20	06/03/20	06/02/20	06/08/20	06/03/20	06/09/20	06/02/20	06/03/20	06/03/20	06/03/20	06/08/20	06/05/20	06/04/20	06/05/20
Sample Name:				CH-14-RO_060820	MW-01(2)_061020	MW-02-02(3)_061120	MW-02-03(6)_060320	MW-02-04(3)_060820	MW-03-05_060320	MW-03-06_060220	MW-03-07_060820	MW-03-08_060320	MW-03-08_060920	MW-04-01(6)_060220	MW-04-04R_060320	MW-04-05(6)_060320	MW-04-06R_060320	MW-05(3)_060820	MW-12-01_060520	MW-12-02_060420	MW-12-05R_060520
Inorganics																					
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	<0.002	NA	NA	NA	**0.071**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	**7.21**	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	**8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	<0.005	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	<0.003	NA	NA	NA	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	**0.012**	NA	NA	NA	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	<0.005	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																					
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																					
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																					
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<7.1	NA	NA	NA	<7.1	NA	NA	<6.9	NA	<6.9	NA	<6.9 [<6.7]	<6.7	<7.1	NA	NA	NA	NA
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<71	NA	NA	NA	<7.1	NA	NA	<6.9	NA	<6.9	NA	<6.9 [<6.7]	<6.7	<7.1	NA	NA	NA	NA
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<7.1	NA	NA	NA	<7.1	NA	NA	<6.9	NA	<6.9	NA	<6.9 [<6.7]	<6.7	<7.1	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<710	NA	NA	NA	<7.1	NA	NA	<6.9	NA	<6.9	NA	<6.9 [<6.7]	<6.7	<7.1	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<710	NA	NA	NA	<7.1	NA	NA	<6.9	NA	<6.9	NA	<6.9 [<6.7]	<6.7	<7.1	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	**113**	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	**1.4 J**	<3.6	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**17.2**	NA	NA	NA	**6.5 J**	NA	NA	**4.1 J**	NA	<6.9	NA	<6.9 [<6.7]	**25.6**	**2.8 J**	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<3.6	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<3.6	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<360	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	**367**	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**29.7**	NA	NA	NA	<3.6	NA	NA	**1.4 J**	NA	<3.4	NA	<3.4 [<3.3]	**28.5**	<3.6	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**1,560**	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	**1.1 J**	<3.6	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**35.9**	NA	NA	NA	**0.93 J**	NA	NA	**5.1**	NA	<3.4	NA	<3.4 [<3.3]	**47.3**	**0.89 J**	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<3.6	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<3.6	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**12,900**	NA	NA	NA	<3.6	NA	NA	<3.4	NA	**3.4**	NA	**<3.4 [1.3 J]**	<3.3	**2.1 J**	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**69.2**	NA	NA	NA	<3.6	NA	NA	<3.4	NA	**0.95 J**	NA	<3.4 [<3.3]	**23.9**	<3.6	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	**222**	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	**1.0 J**	<3.6	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**15.6**	NA	NA	NA	**3.0 J**	NA	NA	**8.1**	NA	<3.4	NA	<3.4 [<3.3]	**40.0**	**1.8 J**	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<360	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<360	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<36	NA	NA	NA	<3.6	NA	NA	<3.4	NA	<3.4	NA	<3.4 [<3.3]	<3.3	<3.6	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Location ID:	P201 RES DW	P201 GSI		MW-12-06	MW-12-09	MW-12-11	MW-12-12	MW-12-12	MW-12-13	MW-12-13	MW-12-18	MW-12-20	MW-12-21	MW-13-22	MW-13-22	MW-13-23	MW-13-24	MW-13-25	MW-13-28	MW-13-29	MW-13-32	MW-13-34
Date Collected:				06/04/20	06/08/20	06/04/20	03/03/20	06/03/20	03/04/20	06/04/20	06/08/20	06/10/20	06/11/20	03/03/20	06/11/20	06/11/20	06/10/20	06/10/20	06/03/20	06/10/20	06/08/20	06/10/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-12-06_060420	MW-12-09_060820	MW-12-11_060420	MW-12-12_030320	MW-12-12_060320	MW-12-13_030420	MW-12-13_060420	MW-12-18_060820	MW-12-20_061020	MW-12-21_061120	MW-13-22_030320	MW-13-22_061120	MW-13-23_061120	MW-13-24_061020	MW-13-25_061020	MW-13-28_060320	MW-13-29_061020	MW-13-32_060820	MW-13-34_061020
Field																						
Conductance, specific	- -	- -	mS/cm	0.92	2.28	5.33	0.489	0.59	0.66	0.99	2.24	1.54	1.41	1.98	1.94	2.3	1.03	2.11	0.247	3.03	0.55	1.81
Dissolved oxygen (DO)	- -	- -	mg/L	5.51	0.21	0.51	0.14	0.34	0.85	0.27	0.24	0.33	0.62	0.23	0.59	0.8	0.6	6.06	7.36	0.26	0.14	0.01
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-152.7	-46	-72.3	104.2	-31.1	121.3	-22.2	-18.1	-78.9	-60.9	-44.9	-85.6	54.7	-76.7	-71	56.4	-42.1	-2.4	-91.5
pH	- -	- -	s.u.	7.34	6.92	6.77	7.78	7.59	7.5	7.26	7.06	6.86	6.85	6.82	6.95	6.61	7	7.08	10.46	6.67	6.99	6.88
Temperature, field	- -	- -	Deg C	24.8	17.4	12.6	8.5	17.9	9.2	13.6	15.4	16.6	14.5	11.7	14.2	15.7	15.6	18.2	22.2	16.1	14.7	15
Turbidity (field)	- -	- -	NTU	9.68	8.89	0.02	1.02	10.1	1.2	0.02	18.8	16.1	57.5	23.3	58.7	35.7	3.97	11.1	9.17	6.1	0.02	1.2
Volatile Organics																						
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
1,2,3-Trichloropropane	42	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Acrylonitrile	2.6	2	ug/L	NA	<2	NA	NA	NA	NA	NA	<2	NA	<2	NA	<2	NA	NA	NA	NA	NA	NA	<2
Bromobenzene	18	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Chlorobromomethane	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Dibromomethane	80	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	<10	NA	NA	NA	NA	NA	<10	NA	<10	NA	<10	NA	NA	NA	NA	NA	NA	<10
Iodomethane	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
N-Butylbenzene	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
N-Propylbenzene	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Tetrahydrofuran	95	11,000	ug/L	NA	<90	NA	NA	NA	NA	NA	<90	NA	<90	NA	<90	NA	NA	NA	NA	NA	NA	<90
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,2-Dichlorobenzene	600	13	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,4-Dichlorobenzene	75	17	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,4-Dioxane	7.2	280	ug/L	NA	**2**	NA	NA	NA	NA	NA	NA	<1	**230 Y**	**203 Y**	**157**	<1	**1**	**9**	NA	**35**	NA	**81**
1,1,1-Trichloroethane	200	89	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
2-Hexanone	1,000	- -	ug/L	NA	<50	NA	NA	NA	NA	NA	<50	NA	<50	NA	<50	NA	NA	NA	NA	NA	NA	<50
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Acetone	730	1,700	ug/L	NA	<50	NA	NA	NA	NA	NA	<50	NA	<50	NA	<50	NA	NA	NA	NA	NA	NA	<50
1,1,2-Trichloroethane	5.0	330	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Bromodichloromethane	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,1-Dichloroethane	880	740	ug/L	NA	<1	NA	NA	NA	NA	NA	**2**	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Bromoform	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,1-Dichloroethene	7.0	130	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
1,2-Dichloroethane	5.0	360	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Carbon disulfide	800	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Carbon tetrachloride	5.0	38	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
cis-1,2-Dichloroethene	70	620	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Chlorobenzene	100	25	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Chloroform (Trichloromethane)	80	350	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Trichloroethene	5.0	200	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Tetrachloroethene	5.0	60	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Vinyl chloride	2.0	13	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
2-Methylnaphthalene	260	19	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Chloroethane	430	1,100	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Benzene	5.0	200	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Methylene chloride	5	1,500	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Styrene	100	80	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Toluene	790	270	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Naphthalene	520	11	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	<25	NA	NA	NA	NA	NA	<25	NA	<25	NA	<25	NA	NA	NA	NA	NA	NA	<25
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	<50	NA	NA	NA	NA	NA	<50	NA	<50	NA	<50	NA	NA	NA	NA	NA	NA	<50
1,2,4-Trichlorobenzene	70	99	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
1,2,4-Trimethylbenzene	63	17	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,3,5-Trimethylbenzene	72	45	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,2-Dichloropropane	5.0	230	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
1,3-Dichlorobenzene	6.6	28	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
Isopropyl benzene	800	28	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5
o-Xylene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	<1	NA	<1	NA	<1	NA	NA	NA	NA	NA	NA	<1
m&p-Xylene	- -	- -	ug/L	NA	<2	NA	NA	NA	NA	NA	<2	NA	<2	NA	<2	NA	NA	NA	NA	NA	NA	<2
Hexachloroethane	7.3	6.7	ug/L	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	<5

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Location ID:	P201 RES DW	P201 GSI		MW-12-06	MW-12-09	MW-12-11	MW-12-12	MW-12-12	MW-12-13	MW-12-13	MW-12-18	MW-12-20	MW-12-21	MW-13-22	MW-13-22	MW-13-23	MW-13-24	MW-13-25	MW-13-28	MW-13-29	MW-13-32	MW-13-34
Date Collected:				06/04/20	06/08/20	06/04/20	03/03/20	06/03/20	03/04/20	06/04/20	06/08/20	06/10/20	06/11/20	03/03/20	06/11/20	06/11/20	06/10/20	06/10/20	06/03/20	06/10/20	06/08/20	06/10/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-12-06_060420	MW-12-09_060820	MW-12-11_060420	MW-12-12_030320	MW-12-12_060320	MW-12-13_030420	MW-12-13_060420	MW-12-18_060820	MW-12-20_061020	MW-12-21_061120	MW-13-22_030320	MW-13-22_061120	MW-13-23_061120	MW-13-24_061020	MW-13-25_061020	MW-13-28_060320	MW-13-29_061020	MW-13-32_060820	MW-13-34_061020
Semivolatile Organics																						
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
1,4-Dioxane	7.2	280	ug/L	<0.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.78**	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA

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2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:				MW-12-06	MW-12-09	MW-12-11	MW-12-12	MW-12-12	MW-12-13	MW-12-13	MW-12-18	MW-12-20	MW-12-21	MW-13-22	MW-13-22	MW-13-23	MW-13-24	MW-13-25	MW-13-28	MW-13-29	MW-13-32	MW-13-34
Date Collected:	P201 RES DW	P201 GSI		06/04/20	06/08/20	06/04/20	03/03/20	06/03/20	03/04/20	06/04/20	06/08/20	06/10/20	06/11/20	03/03/20	06/11/20	06/11/20	06/10/20	06/10/20	06/03/20	06/10/20	06/08/20	06/10/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-12-06_060420	MW-12-09_060820	MW-12-11_060420	MW-12-12_030320	MW-12-12_060320	MW-12-13_030420	MW-12-13_060420	MW-12-18_060820	MW-12-20_061020	MW-12-21_061120	MW-13-22_030320	MW-13-22_061120	MW-13-23_061120	MW-13-24_061020	MW-13-25_061020	MW-13-28_060320	MW-13-29_061020	MW-13-32_060820	MW-13-34_061020
Inorganics																						
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	<0.002 [<0.002]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.041**	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.005**	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	<0.003 [<0.003]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	**0.008 [0.007]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.185**	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	<0.005 [<0.005]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																						
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																						
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																						
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	<7.1	<6.9	<6.9	<6.9	<6.9	<6.9 [<6.9]	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	<7.1	<6.9	<6.9	<6.9	<6.9	<6.9 [<6.9]	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	<7.1	<6.9	<6.9	<6.9	<6.9	<6.9 [<6.9]	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	<7.1	<6.9	<6.9	<6.9	<6.9	<6.9 [<6.9]	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	<7.1	<6.9	<6.9	<6.9	<6.9	<6.9 [<6.9]	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	**1.6 J**	<3.4	**1.4 J**	**1.1 J**	<3.4	**1.4 J [1.6 J]**	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	**6.0 J**	**5.8 J**	**41.8**	**36.3**	**32.2**	**34.7 [34.6]**	**3.6 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	<3.6	<3.4	**8.5**	**10.2**	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	**0.96 J**	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	**4.5**	<3.4	**45.8**	**31.8**	**14.4**	**13.7 [14.4]**	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	**1.9 J**	<3.4	**1.1 J**	**1.2 J**	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	**4.6**	**0.87 J**	**95.1**	**70.3**	**55.6**	**56.4 [57.0]**	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	<3.6	<3.4	**7.7**	**7.8**	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	<3.6	<3.4	**40.6**	**45.4**	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	**12.6**	<3.4	**69.7**	**60.9**	**1.1 J**	**1.3 J [1.3 J]**	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	**3.3 J**	**2.1 J**	**79**	**59.8**	**43.9**	**42.4 [42.6]**	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	<3.6	<3.4	<3.4	<3.4	<3.4	<3.4 [<3.4]	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-13-36R	MW-13-36R	MW-13-37	MW-13-38	MW-13-41	MW-13-43	MW-13-44	MW-13-45	MW-13-46	MW-13-47	MW-13-48	MW-13-49	MW-13-50	MW-13-51	MW-13-52	MW-13-53	MW-14-54	MW-14-55	MW-14-56
Date Collected:	(DEQ2018)	(DEQ2018)		03/04/20	06/04/20	06/03/20	06/04/20	06/11/20	06/09/20	06/04/20	06/09/20	06/10/20	06/04/20	06/10/20	06/10/20	06/04/20	06/08/20	06/04/20	06/04/20	06/09/20	06/09/20	06/08/20
Sample Name:			Units	MW-13-36R_030420	MW-13-36R_060420	MW-13-37_060320	MW-13-38_060420	MW-13-41_061120	MW-13-43_060920	MW-13-44_060420	MW-13-45_060920	MW-13-46_061020	MW-13-47_060420	MW-13-48_061020	MW-13-49_061020	MW-13-50_060420	MW-13-51_060820	MW-13-52_060420	MW-13-53_060420	MW-14-54_060920	MW-14-55_060920	MW-14-56_060820
Field																						
Conductance, specific	- -	- -	mS/cm	1.03	1.18	0.75	1.7	4.47	2.31	1.46	1.06	2.06	1.7	2.1	1.48	1.31	1.57	1.65	1.68	1.29	0.64	4.33
Dissolved oxygen (DO)	- -	- -	mg/L	0.06	0.13	5.28	0.5	0.24	0.28	4.48	0.18	0.49	5.11	0.01	0.27	0.66	0.48	1.33	5.85	0.06	6.36	5.14
Oxidation reduction potential (ORP), field	- -	- -	millivolts	164	46	122.4	148.9	-119.6	-84.5	-68.9	-1	-48.8	-142.5	-68.9	-50.2	-131.8	-10.8	-60.3	-23.4	-309.9	50.6	-49.2
pH	- -	- -	s.u.	11.98	11.62	8.89	9.25	7.46	7.07	7.23	7.25	6.55	7.17	6.58	6.68	7.16	6.92	7.09	7.05	8.44	7.42	6.71
Temperature, field	- -	- -	Deg C	5.9	15.5	25.3	15	15.1	15.5	23	15.4	14.7	25.6	14.4	15.3	17.3	25.1	15	14.9	14.6	13.2	13.8
Turbidity (field)	- -	- -	NTU	1.25	0.02	9.69	15.1	72.1	61	25.9	17.9	2.92	9.38	1.6	1.6	14.5	16	17.8	10.2	4.16	10.6	1.6
Volatile Organics																						
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**230 Y**	<1	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Acrylonitrile	2.6	2	ug/L	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	<20 Y	<2	NA
Bromobenzene	18	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Chlorobromomethane	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Dibromomethane	80	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	NA	NA	NA	<10	NA	NA	NA	NA	NA	<10	NA	NA	NA	NA	NA	<100 Y	<10	NA
Iodomethane	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
N-Butylbenzene	80	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
N-Propylbenzene	80	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**190 Y**	<1	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Tetrahydrofuran	95	11,000	ug/L	NA	NA	NA	NA	<90	NA	NA	NA	NA	NA	<90	NA	NA	NA	NA	NA	<900 Y	<90	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	**230 Y**	NA	**38**	<1	NA	**128**	<1	<1	<1	<1	<1	NA	NA	**12**
1,1,1-Trichloroethane	200	89	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
2-Hexanone	1,000	- -	ug/L	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA	<500 Y	<50	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Acetone	730	1,700	ug/L	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA	<500 Y	<50	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Bromodichloromethane	80	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,1-Dichloroethane	880	740	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Bromoform	80	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Carbon disulfide	800	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Carbon tetrachloride	5.0	38	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Chlorobenzene	100	25	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Trichloroethene	5.0	200	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Tetrachloroethene	5.0	60	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Vinyl chloride	2.0	13	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Chloroethane	430	1,100	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Benzene	5.0	200	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**620 Y**	<1	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**1,710 Y**	<1	NA
Methylene chloride	5	1,500	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Styrene	100	80	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Toluene	790	270	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**130 Y**	<1	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	**220 Y**	<5	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	NA	NA	NA	<25	NA	NA	NA	NA	NA	<25	NA	NA	NA	NA	NA	<250 Y	<25	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA	<50	NA	NA	NA	NA	NA	<500 Y	<50	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**650 Y**	<1	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**30 Y**	<1	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<10 Y	<1	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA
Isopropyl benzene	800	28	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	**70 Y**	<5	NA
o-Xylene	- -	- -	ug/L	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	NA	**10 Y**	<1	NA
m&p-Xylene	- -	- -	ug/L	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	**1,350 Y**	<2	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	<50 Y	<5	NA

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

Location ID:	P201 RES DW	P201 GSI		MW-13-36R	MW-13-36R	MW-13-37	MW-13-38	MW-13-41	MW-13-43	MW-13-44	MW-13-45	MW-13-46	MW-13-47	MW-13-48	MW-13-49	MW-13-50	MW-13-51	MW-13-52	MW-13-53	MW-14-54	MW-14-55	MW-14-56
Date Collected:	(DEQ2018)	(DEQ2018)	Units	03/04/20	06/04/20	06/03/20	06/04/20	06/11/20	06/09/20	06/04/20	06/09/20	06/10/20	06/04/20	06/10/20	06/10/20	06/04/20	06/08/20	06/04/20	06/04/20	06/09/20	06/09/20	06/08/20
Sample Name:				MW-13-36R_030420	MW-13-36R_060420	MW-13-37_060320	MW-13-38_060420	MW-13-41_061120	MW-13-43_060920	MW-13-44_060420	MW-13-45_060920	MW-13-46_061020	MW-13-47_060420	MW-13-48_061020	MW-13-49_061020	MW-13-50_060420	MW-13-51_060820	MW-13-52_060420	MW-13-53_060420	MW-14-54_060920	MW-14-55_060920	MW-14-56_060820
Semivolatile Organics																						
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	**0.32**	**2.0**	NA	NA	**0.79**	NA	NA	**0.98**	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Location ID:	P201 RES DW	P201 GSI		MW-13-36R	MW-13-36R	MW-13-37	MW-13-38	MW-13-41	MW-13-43	MW-13-44	MW-13-45	MW-13-46	MW-13-47	MW-13-48	MW-13-49	MW-13-50	MW-13-51	MW-13-52	MW-13-53	MW-14-54	MW-14-55	MW-14-56
Date Collected:	(DEQ2018)	(DEQ2018)	Units	03/04/20	06/04/20	06/03/20	06/04/20	06/11/20	06/09/20	06/04/20	06/09/20	06/10/20	06/04/20	06/10/20	06/10/20	06/04/20	06/08/20	06/04/20	06/04/20	06/09/20	06/09/20	06/08/20
Sample Name:				MW-13-36R_030420	MW-13-36R_060420	MW-13-37_060320	MW-13-38_060420	MW-13-41_061120	MW-13-43_060920	MW-13-44_060420	MW-13-45_060920	MW-13-46_061020	MW-13-47_060420	MW-13-48_061020	MW-13-49_061020	MW-13-50_060420	MW-13-51_060820	MW-13-52_060420	MW-13-53_060420	MW-14-54_060920	MW-14-55_060920	MW-14-56_060820
Inorganics																						
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																						
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																						
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																						
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	**6.6 J**	**6.3 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	**3.9 J**	**3.6 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	<3.4	**4.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**25.9**	**22.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.3 J**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<3.4	**1.2 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	**22.8**	**20.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<3.4	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<3.4	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**36.3**	**34.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	<3.4	**1.5 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**29.9**	**27.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<3.4	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorononanoic acid (PFNA)	6	- -	ng/L	**13.0**	**11.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.4	**5.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**44.5**	**46.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**72.1**	**66.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<3.4	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**33.6**	**27.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.4**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<3.4	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<3.4	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	**0.84 J**	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-14-57	MW-14-58	MW-14-59	MW-14-60	MW-14-61	MW-14-61	MW-14-62	MW-14-63	MW-14-64	MW-14-66	MW-14-67	MW-14-67	MW-14-70	MW-14-70	MW-15-71	MW-15-72	MW-15-72	MW-15-73	MW-16-74
Date Collected:	(DEQ2018)	(DEQ2018)	Units	06/09/20	06/09/20	06/09/20	06/09/20	03/03/20	06/02/20	06/09/20	06/08/20	06/11/20	06/02/20	03/04/20	06/04/20	03/04/20	06/03/20	06/11/20	03/02/20	06/02/20	06/08/20	03/02/20
Sample Name:				MW-14-57_060920	MW-14-58_060920	MW-14-59_060920	MW-14-60_060920	MW-14-61_030320	MW-14-61_060220	MW-14-62_060920	MW-14-63_060820	MW-14-64_061120	MW-14-66_060220	MW-14-67_030420	MW-14-67_060420	MW-14-70_030420	MW-14-70_060320	MW-15-71_061120	MW-15-72_030220	MW-15-72_060220	MW-15-73_060820	MW-16-74_030220
Field																						
Conductance, specific	- -	- -	mS/cm	0.64	5.02	0.67	1.27	1.35	1.97	0.56	1.2	1.77	0.87	1.17	1.69	0.95	1.35	1.49	0.86	1.4	2.88	1.71
Dissolved oxygen (DO)	- -	- -	mg/L	1.37	0.19	0.23	0.14	1.6	0.36	0.11	3.81	1.68	0.22	0.18	20	1.09	0.21	1.25	0.63	0.18	0.36	0.44
Oxidation reduction potential (ORP), field	- -	- -	millivolts	62.9	-78.5	-64.3	-119.9	-42.7	-45.2	-103.9	-57.6	-76.5	-4.8	121.9	58.3	213.5	16.9	45.9	-56.6	-84.5	-44.1	-45.7
pH	- -	- -	s.u.	7.48	6.73	7.19	7.25	7	6.85	11.17	6.95	7.01	7.37	7.39	7.23	7.31	7.23	7	7.07	6.9	6.76	7.04
Temperature, field	- -	- -	Deg C	13.9	19.9	18.3	18.4	12.7	16.8	17.3	16.5	17.6	18.8	8.2	15.3	8.3	16	14.1	13.3	17.1	19	13
Turbidity (field)	- -	- -	NTU	11.4	20.8	4.04	44.9	13.2	51.7	0.02	17.9	0.02	0.02	1.82	2.2	1.11	2.45	6.03	24.9	50.4	79.2	27.6
Volatile Organics																						
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	**1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	<2	<2 [<2]	<2	NA	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Bromobenzene	18	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Dibromomethane	80	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	<10	<10 [<10]	<10	NA	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
Iodomethane	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	<90	<90 [<90]	<90	NA	<90	<90	NA	NA	NA	NA	NA	NA	NA	NA	NA	<90	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,4-Dioxane	7.2	280	ug/L	**1**	**38**	**56 [56]**	**107**	**148**	**152**	**27**	<1	<1	NA	NA	NA	NA	NA	<1	**150 Y**	**270 Y**	**10**	**2**
1,1,1-Trichloroethane	200	89	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	<50	<50 [<50]	<50	NA	<50	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Acetone	730	1,700	ug/L	NA	<50	<50 [<50]	<50	NA	<50	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	<1	**4 [4]**	<1	NA	<1	**36**	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Bromoform	80	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	<1	**19 [18]**	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Carbon disulfide	800	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Chlorobenzene	100	25	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Trichloroethene	5.0	200	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	<1	<1 [<1]	**5**	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Chloroethane	430	1,100	ug/L	NA	<5	<5 [<5]	**32**	NA	**17**	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Benzene	5.0	200	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Methylene chloride	5	1,500	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Styrene	100	80	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Toluene	790	270	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Naphthalene	520	11	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	<25	<25 [<25]	<25	NA	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	<50	<50 [<50]	<50	NA	<50	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Isopropyl benzene	800	28	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
o-Xylene	- -	- -	ug/L	NA	<1	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	<2	<2 [<2]	<2	NA	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	<5	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA

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2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-14-57	MW-14-58	MW-14-59	MW-14-60	MW-14-61	MW-14-61	MW-14-62	MW-14-63	MW-14-64	MW-14-66	MW-14-67	MW-14-67	MW-14-70	MW-14-70	MW-15-71	MW-15-72	MW-15-72	MW-15-73	MW-16-74
Date Collected:				06/09/20	06/09/20	06/09/20	06/09/20	03/03/20	06/02/20	06/09/20	06/08/20	06/11/20	06/02/20	03/04/20	06/04/20	03/04/20	06/03/20	06/11/20	03/02/20	06/02/20	06/08/20	03/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-14-57_060920	MW-14-58_060920	MW-14-59_060920	MW-14-60_060920	MW-14-61_030320	MW-14-61_060220	MW-14-62_060920	MW-14-63_060820	MW-14-64_061120	MW-14-66_060220	MW-14-67_030420	MW-14-67_060420	MW-14-70_030420	MW-14-70_060320	MW-15-71_061120	MW-15-72_030220	MW-15-72_060220	MW-15-73_060820	MW-16-74_030220
Semivolatile Organics																						
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	<4 [<4]	<4	NA	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	<10 [<10]	<10	NA	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	<25 [<25]	<25	NA	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	<10 [<10]	<10	NA	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	<10 [<10]	<10	NA	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	<25 [<25]	<25	NA	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	<20 [<20]	<20	NA	<20	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Naphthalene	520	11	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	<25 [<25]	<25	NA	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	<20 [<20]	<20	NA	<20	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	<10 [<10]	<10	NA	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	<25 [<25]	<25	NA	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	<25 [<25]	<25	NA	<25	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
Anthracene	43	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	<2 [<2]	<2	NA	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	<4 [<4]	<4	NA	<4	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	<1 [<1]	<1	NA	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Fluorene	880	12	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	<10 [<10]	<10	NA	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	<2 [<2]	<2	NA	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	<2 [<2]	<2	NA	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Phenol	4,400	450	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Pyrene	140	- -	ug/L	NA	NA	<5 [<5]	<5	NA	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:				MW-14-57	MW-14-58	MW-14-59	MW-14-60	MW-14-61	MW-14-61	MW-14-62	MW-14-63	MW-14-64	MW-14-66	MW-14-67	MW-14-67	MW-14-70	MW-14-70	MW-15-71	MW-15-72	MW-15-72	MW-15-73	MW-16-74
Date Collected:	P201 RES DW	P201 GSI		06/09/20	06/09/20	06/09/20	06/09/20	03/03/20	06/02/20	06/09/20	06/08/20	06/11/20	06/02/20	03/04/20	06/04/20	03/04/20	06/03/20	06/11/20	03/02/20	06/02/20	06/08/20	03/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-14-57_060920	MW-14-58_060920	MW-14-59_060920	MW-14-60_060920	MW-14-61_030320	MW-14-61_060220	MW-14-62_060920	MW-14-63_060820	MW-14-64_061120	MW-14-66_060220	MW-14-67_030420	MW-14-67_060420	MW-14-70_030420	MW-14-70_060320	MW-15-71_061120	MW-15-72_030220	MW-15-72_060220	MW-15-73_060820	MW-16-74_030220
Inorganics																						
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.004**	NA	<0.002	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.003	NA	<0.003	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																						
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																						
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	**0.07**	**0.05**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	**0.6**	**0.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																						
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	<7.1	<7.1 [<7.1]	<71	NA	<7.1	<6.7	NA	NA	NA	<6.9	<6.7	<6.9	<6.9	NA	NA	<8	NA	NA
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	<7.1	<7.1 [<7.1]	<71	NA	<7.1	**13.4**	NA	NA	NA	<6.9	<6.7	<6.9	<6.9	NA	NA	<8	NA	NA
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	<7.1	<7.1 [<7.1]	<7.1	NA	<7.1	**4.2 J**	NA	NA	NA	<6.9	<6.7	<6.9	<6.9	NA	NA	<8	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	<7.1	<7.1 [<7.1]	<7.1	NA	<7.1	<6.7	NA	NA	NA	<6.9	<6.7	<6.9	<6.9	NA	NA	<8	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	<7.1	<7.1 [<7.1]	<7.1	NA	<7.1	<6.7	NA	NA	NA	<6.9	<6.7	<6.9	<6.9	NA	NA	<8	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	**1.1 J**	<3.6 [<3.6]	<3.6	NA	<3.6	**1.4 J**	NA	NA	NA	**1.6 J**	**1.2 J**	**4.8**	**6.0**	NA	NA	<4	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	**6.2 J**	**6.6 J [6.4 J]**	**9.6**	NA	**1.9 J**	NA	NA	NA	NA	**49.1**	**51.0**	**50.6**	**48.6**	NA	NA	**4.1 J**	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	**1.0 J**	NA	<3.6	**1.7 J**	NA	NA	NA	**2.5 J**	**2.0 J**	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	**0.94 J**	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	**2.9 J**	**2.1 J [1.9 J]**	<36	NA	<3.6	**13.1**	NA	NA	NA	**28.2**	**28.1**	**63.2**	**62.0**	NA	NA	<4	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	**1.4 J**	<3.6 [<3.6]	<3.6	NA	<3.6	**4.7**	NA	NA	NA	<3.4	<3.3	**3.1 J**	**2.4 J**	NA	NA	<4	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	**4.5**	**3.2 J [3.0 J]**	**34.7 J**	NA	**1.1 J**	**12.5**	NA	NA	NA	**76.6**	**81.6**	**98.1**	**95.7**	NA	NA	**1.0 J**	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	<18	<18 [<18]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	<3.6	<3.6 [<3.6]	**2.7 J**	NA	<3.6	**5.1**	NA	NA	NA	**1.1 J**	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	<3.6	<18 [<3.6]	<36	NA	<3.6	**3.1 J**	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	<18	<18 [<18]	**13.2**	NA	<3.6	**50.2**	NA	NA	NA	**6.4**	**3.6**	<3.4	**1.3 J**	NA	NA	<4	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	**7.1**	**6.7 [6.8]**	**19.7 J**	NA	**1.4 J**	**36.5**	NA	NA	NA	**11.9**	**10.7**	**37.2**	**42.8**	NA	NA	<4	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	**5.5**	**2.7 J [2.6 J]**	**8.1**	NA	**3.8**	**9.8**	NA	NA	NA	**74.2**	**75.5**	**155**	**129**	NA	NA	**4.1**	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	<3.6	<3.6 [<3.6]	<3.6	NA	<3.6	<3.3	NA	NA	NA	<3.4	<3.3	<3.4	<3.4	NA	NA	<4	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-16-74	MW-16-75	MW-16-76	MW-16-77	MW-16-78	MW-16-79	MW-16-80	MW-16-81	MW-16-81	MW-16-81	MW-16-82	MW-16-83	MW-16-84	MW-16-84	MW-16-85	MW-17-86	MW-17-86	MW-17-87	MW-18-88
Date Collected:				06/05/20	06/08/20	06/08/20	06/08/20	06/09/20	06/09/20	06/08/20	03/02/20	06/05/20	06/09/20	06/10/20	06/08/20	03/04/20	06/04/20	06/08/20	03/04/20	06/03/20	06/05/20	03/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-16-74_060520	MW-16-75_060820	MW-16-76_060820	MW-16-77_060820	MW-16-78_060920	MW-16-79_060920	MW-16-80_060820	MW-16-81_030220	MW-16-81_060520	MW-16-81_060920	MW-16-82_061020	MW-16-83_060820	MW-16-84_030420	MW-16-84_060420	MW-16-85_060820	MW-17-86_030420	MW-17-86_060320	MW-17-87_060520	MW-18-88_030220
Field																						
Conductance, specific	- -	- -	mS/cm	2.04	2.15	1.95	2.14	1.81	0.94	1.25	1.31	1.65	1.37	1.2	4.14	0.98	1.35	1.11	1.23	1.77	3.57	0.443
Dissolved oxygen (DO)	- -	- -	mg/L	0.49	0.32	0.29	0.74	0.26	0.79	1.31	0.4	0.26	0.01	0.36	0.4	0.21	0.63	0.48	0.15	2.12	3	0.03
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-7.9	-38.5	-31.8	-69.2	-63.4	-70.9	-29.1	-72.2	-81.3	-86.3	-102.3	-65.6	13.2	-30.8	-34.9	-25.4	-60.3	-162.1	67.7
pH	- -	- -	s.u.	6.98	7.07	7.18	7.13	6.95	7.14	7.08	7.07	7.05	6.97	7.09	6.89	7.1	7.08	7.25	6.99	6.82	7.11	7.17
Temperature, field	- -	- -	Deg C	16.3	16.1	14	18.8	18.4	19.2	16.6	13.6	18.7	15.5	21.5	22.4	12.1	15.4	15.8	11.9	18.3	24.7	6.5
Turbidity (field)	- -	- -	NTU	19.3	65.2	10.9	32.9	6.22	50.7	9.91	22.9	19.7	2.19	0.02	47.6	12	23.6	125	0.76	144	9.68	1.66
Volatile Organics																						
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	<2 [<2]	<2	NA	<2	NA	NA
Bromobenzene	18	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Dibromomethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	NA	NA	<10 [<10]	<10	NA	<10	NA	NA
Iodomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<90	NA	NA	NA	NA	<90 [<90]	<90	NA	<90	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,4-Dioxane	7.2	280	ug/L	**2**	**2**	**2**	<1	<1	<1	**7**	**2,600 Y [2,700 Y]**	**3,100 Y [2,700 Y]**	NA	<1	<1	**66**	**58 [58]**	**8**	**99**	**94**	NA	NA
1,1,1-Trichloroethane	200	89	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA	NA	<50 [<50]	<50	NA	<50	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Acetone	730	1,700	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA	NA	<50 [<50]	<50	NA	<50	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Bromoform	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Carbon disulfide	800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Chlorobenzene	100	25	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Trichloroethene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Chloroethane	430	1,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	**19**	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Benzene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Methylene chloride	5	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Styrene	100	80	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Toluene	790	270	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA	NA	NA	<25 [<25]	<25	NA	<25	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA	NA	<50 [<50]	<50	NA	<50	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
Isopropyl benzene	800	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA
o-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA	NA	<1 [<1]	<1	NA	<1	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA	NA	<2 [<2]	<2	NA	<2	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	<5 [<5]	<5	NA	<5	NA	NA

See Notes on last page.

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Location ID:	P201 RES DW	P201 GSI		MW-16-74	MW-16-75	MW-16-76	MW-16-77	MW-16-78	MW-16-79	MW-16-80	MW-16-81	MW-16-81	MW-16-81	MW-16-82	MW-16-83	MW-16-84	MW-16-84	MW-16-85	MW-17-86	MW-17-86	MW-17-87	MW-18-88
Date Collected:				06/05/20	06/08/20	06/08/20	06/08/20	06/09/20	06/09/20	06/08/20	03/02/20	06/05/20	06/09/20	06/10/20	06/08/20	03/04/20	06/04/20	06/08/20	03/04/20	06/03/20	06/05/20	03/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-16-74_060520	MW-16-75_060820	MW-16-76_060820	MW-16-77_060820	MW-16-78_060920	MW-16-79_060920	MW-16-80_060820	MW-16-81_030220	MW-16-81_060520	MW-16-81_060920	MW-16-82_061020	MW-16-83_060820	MW-16-84_030420	MW-16-84_060420	MW-16-85_060820	MW-17-86_030420	MW-17-86_060320	MW-17-87_060520	MW-18-88_030220
Semivolatile Organics																						
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.5**	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
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RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:				MW-16-74	MW-16-75	MW-16-76	MW-16-77	MW-16-78	MW-16-79	MW-16-80	MW-16-81	MW-16-81	MW-16-81	MW-16-82	MW-16-83	MW-16-84	MW-16-84	MW-16-85	MW-17-86	MW-17-86	MW-17-87	MW-18-88
Date Collected:	P201 RES DW	P201 GSI		06/05/20	06/08/20	06/08/20	06/08/20	06/09/20	06/09/20	06/08/20	03/02/20	06/05/20	06/09/20	06/10/20	06/08/20	03/04/20	06/04/20	06/08/20	03/04/20	06/03/20	06/05/20	03/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-16-74_060520	MW-16-75_060820	MW-16-76_060820	MW-16-77_060820	MW-16-78_060920	MW-16-79_060920	MW-16-80_060820	MW-16-81_030220	MW-16-81_060520	MW-16-81_060920	MW-16-82_061020	MW-16-83_060820	MW-16-84_030420	MW-16-84_060420	MW-16-85_060820	MW-17-86_030420	MW-17-86_060320	MW-17-87_060520	MW-18-88_030220
Inorganics																						
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																						
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																						
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																						
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<36	NA	NA	NA	NA	NA	NA	NA	NA	<7.4
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	<7.4
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	<7.4
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	<7.4
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	<7.4
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	**2.0 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.9 J**	NA	NA	NA	NA	NA	NA	NA	NA	**4.8 J**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	**1.5 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<18	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	**46.1**
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	**3.1 J**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.6**	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	<3.7
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

Location ID:	P201 RES DW	P201 GSI		MW-18-88	MW-18-88	MW-18-89	MW-18-89	MW-18-90	MW-18-90	MW-18-91	MW-18-91	MW-18-92	MW-18-93	MW-18-94	MW-18-95	MW-18-95	MW-18-96	MW-18-97	MW-18-98	MW-18-98	MW-18-99	MW-18-99
Date Collected:				06/04/20	06/09/20	03/03/20	06/08/20	03/03/20	06/05/20	03/02/20	06/05/20	06/03/20	06/05/20	06/08/20	03/02/20	06/05/20	06/02/20	06/08/20	03/02/20	06/03/20	03/02/20	06/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-18-88_060420	MW-18-88_060920	MW-18-89_030320	MW-18-89_060820	MW-18-90_030320	MW-18-90_060520	MW-18-91_030220	MW-18-91_060520	MW-18-92_060320	MW-18-93_060520	MW-18-94_060820	MW-18-95_030220	MW-18-95_060520	MW-18-96_060220	MW-18-97_060820	MW-18-98_030220	MW-18-98_060320	MW-18-99_030220	MW-18-99_060220
Field																						
Conductance, specific	- -	- -	mS/cm	0.51	0.65	0.42	0.6	1.81	2.3	0.483	0.74	1.07	0.495	3.66	0.309	0.54	0.55	1.51	0.42	0.53	1.3	1.75
Dissolved oxygen (DO)	- -	- -	mg/L	0.27	0.14	0.15	0.66	0.41	0.16	0.07	0.16	0.35	2.03	0.01	6.7	1.03	5.4	0.32	0.05	0.29	0.01	2.67
Oxidation reduction potential (ORP), field	- -	- -	millivolts	2.1	32.9	177.1	41.2	121.5	-192.3	104.4	-196.4	-23.6	-112.2	-87.8	132	-0.2	54.1	-65.2	59.1	-76.1	195.3	-124.1
pH	- -	- -	s.u.	4.8	7.04	8.03	7.86	12.48	12.3	7.75	7.84	6.85	7.26	6.97	7.82	7.59	7.27	6.76	7.41	6.99	8.24	7.8
Temperature, field	- -	- -	Deg C	14.8	19.7	6.5	18.1	10.7	14	7.6	16.4	12.3	14	14.1	6	15.5	16.1	14.2	7.4	13.9	8.4	15.8
Turbidity (field)	- -	- -	NTU	1.64	0.02	1.48	0.22	1.22	4.14	1.76	7.7	1.8	3.34	1.97	1.44	1.53	2.01	1.41	1.17	2.02	1.79	2.56
Volatile Organics																						
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	<90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2**	NA	NA	NA	<1	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	ug/L	NA	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:				MW-18-88	MW-18-88	MW-18-89	MW-18-89	MW-18-90	MW-18-90	MW-18-91	MW-18-91	MW-18-92	MW-18-93	MW-18-94	MW-18-95	MW-18-95	MW-18-96	MW-18-97	MW-18-98	MW-18-98	MW-18-99	MW-18-99
Date Collected:	P201 RES DW	P201 GSI		06/04/20	06/09/20	03/03/20	06/08/20	03/03/20	06/05/20	03/02/20	06/05/20	06/03/20	06/05/20	06/08/20	03/02/20	06/05/20	06/02/20	06/08/20	03/02/20	06/03/20	03/02/20	06/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-18-88_060420	MW-18-88_060920	MW-18-89_030320	MW-18-89_060820	MW-18-90_030320	MW-18-90_060520	MW-18-91_030220	MW-18-91_060520	MW-18-92_060320	MW-18-93_060520	MW-18-94_060820	MW-18-95_030220	MW-18-95_060520	MW-18-96_060220	MW-18-97_060820	MW-18-98_030220	MW-18-98_060320	MW-18-99_030220	MW-18-99_060220
Semivolatile Organics																						
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-18-88	MW-18-88	MW-18-89	MW-18-89	MW-18-90	MW-18-90	MW-18-91	MW-18-91	MW-18-92	MW-18-93	MW-18-94	MW-18-95	MW-18-95	MW-18-96	MW-18-97	MW-18-98	MW-18-98	MW-18-99	MW-18-99
Date Collected:				06/04/20	06/09/20	03/03/20	06/08/20	03/03/20	06/05/20	03/02/20	06/05/20	06/03/20	06/05/20	06/08/20	03/02/20	06/05/20	06/02/20	06/08/20	03/02/20	06/03/20	03/02/20	06/02/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-18-88_060420	MW-18-88_060920	MW-18-89_030320	MW-18-89_060820	MW-18-90_030320	MW-18-90_060520	MW-18-91_030220	MW-18-91_060520	MW-18-92_060320	MW-18-93_060520	MW-18-94_060820	MW-18-95_030220	MW-18-95_060520	MW-18-96_060220	MW-18-97_060820	MW-18-98_030220	MW-18-98_060320	MW-18-99_030220	MW-18-99_060220
Inorganics																						
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																						
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																						
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																						
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<7.1 [<7.1]	NA	<7.4	<7.1	<7.4	<7.1	<7.4	<7.1	<6.9	<7.1	<7.1	<6.9 [<7.4]	<7.1	<13	<7.1	<7.4	<6.9	<7.4	<7.4
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<7.1 [<7.1]	NA	<7.4	<7.1	<7.4	<7.1	<7.4	<7.1	<6.9	<7.1	<7.1	<6.9 [<7.4]	<7.1	<13	<7.1	<7.4	<6.9	<7.4	<7.4
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<7.1 [<7.1]	NA	<7.4	<7.1	<7.4	<7.1	<7.4	<7.1	<6.9	<7.1	<7.1	<6.9 [<7.4]	<7.1	<13	<7.1	<7.4	<6.9	<7.4	<7.4
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<7.1 [<7.1]	NA	<7.4	<7.1	<7.4	<7.1	<7.4	<7.1	<6.9	<7.1	<7.1	<6.9 [<7.4]	<7.1	<13	<7.1	<7.4	<6.9	<7.4	<7.4
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<7.1 [<7.1]	NA	<7.4	<7.1	<7.4	<7.1	<7.4	<7.1	<6.9	<7.1	<7.1	<6.9 [<7.4]	<7.1	<13	<7.1	<7.4	<6.9	<7.4	<7.4
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	**1.9 J [1.9 J]**	NA	<3.7	**0.94 J**	**7.1**	**2.2 J**	**1.9 J**	**1.4 J**	<3.4	<3.6	<3.6	**4.8 [4.1]**	**1.3 J**	<6.3	<3.6	**2.0 J**	**2.1 J**	<3.7	<3.7
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**6.4 J [6.2 J]**	NA	**9.7**	**9.1**	**7.8**	**11.1**	**8.9**	**7.5**	<6.9	<7.1	<7.1	**5.8 J [5.2 J]**	**7.6**	<13	<7.1	**6.2 J**	**14.8**	**11.9**	**15.0**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<3.7	<3.6	<3.7	<3.6	<3.7	<3.6	**4.7**	**4.6**	<3.4	<3.6	<3.6	**2.0 J [2.0 J]**	**1.8 J**	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<3.6 [<3.6]	NA	**1.1 J**	<18	**1.3 J**	**1.3 J**	<3.7	**1.0 J**	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<3.6	<3.7	<3.6	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	**1.3 J [1.2 J]**	NA	**2.5 J**	**3.2 J**	**36.2**	**30.9**	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	**1.3 J**	**1.4 J**	<3.7	**1.7 J**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	<3.6 [<3.6]	NA	**4.8**	**4.9**	**3.5 J**	**3.0 J**	**4**	**2.8 J**	<3.4	<3.6	<3.6	**1.7 J [1.3 J]**	<3.6	<6.3	<3.6	**2.4 J**	**5.1**	**2.0 J**	**3.0 J**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**1.9 J [2.1 J]**	NA	**3.5 J**	**4.6**	**20.4**	**18.2**	**1.8 J**	**1.7 J**	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	**0.99 J**	**1.3 J**	**1.1 J**	**1.8 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	<3.6 [<3.6]	NA	**5.2**	**6.7**	**3.5 J**	**3.8**	**3.3 J**	**3.5 J**	<3.4	<3.6	<3.6	**2.2 J [1.3 J]**	<3.6	**1.6 J**	<3.6	**3.3 J**	**8.1**	**2.2 J**	**3.8**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<18	<3.7	<3.6	<3.7	<18	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<3.6 [<3.6]	NA	**0.99 J**	**1.2 J**	**1.1 J**	**1.3 J**	**1.1 J**	**1.5 J**	<3.4	<3.6	<3.6	<3.4 [<3.7]	**0.90 J**	<6.3	<3.6	<3.7	**0.93 J**	<3.7	**1.3 J**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<18	<3.7	**1.1 J**	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**78.2 [78.3]**	NA	**120**	**150**	**920**	**932**	**47.1**	**51.6**	<3.4	<3.6	<3.6	**38.1 [38.5]**	**37.3**	<6.3	<3.6	**75.2**	**80.0**	**46.7**	**62.1**
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**4.1 [4.2]**	NA	**10.1**	**14.1**	**12.6**	**13.3**	**7.9**	**8.2**	<3.4	<3.6	<3.6	**4.1 [3.5 J]**	**3.7**	<6.3	<3.6	**9.4**	**17.1**	**3.9**	**6.9**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<3.6	**2.9 J**	**2.3 J**	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	<3.6 [<3.6]	NA	**8.2**	**8.5**	**4.5**	**3.4 J**	**3.8**	**4.9**	<3.4	<3.6	<3.6	**2.9 J [2.6 J]**	<3.6	<6.3	<3.6	**3.7**	**8.7**	**3.1 J**	**3.3 J**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<18	<3.7	<3.6	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<18	<3.7	<3.6	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<3.6 [<3.6]	NA	<3.7	<3.6	<3.7	<3.6	<3.7	<3.6	<3.4	<3.6	<3.6	<3.4 [<3.7]	<3.6	<6.3	<3.6	<3.7	<3.4	<3.7	<3.7
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
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January 2020 to June 2020
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Location ID:	P201 RES DW	P201 GSI		MW-18-100	MW-18-101	MW-18-102	MW-18-103	MW-18-103	MW-18-104	MW-18-104	MW-18-105	MW-18-105	MW-18-106	MW-19	MW-19-107	MW-19-108	MW-19-111	MW-19-112	MW-19-113	MW-19-114	MW-19-115
Date Collected:				06/03/20	06/05/20	06/02/20	03/03/20	06/04/20	03/04/20	06/02/20	03/03/20	06/04/20	06/02/20	06/11/20	06/03/20	06/03/20	06/03/20	06/04/20	06/05/20	06/04/20	03/04/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-18-100_060320	MW-18-101_060520	MW-18-102_060220	MW-18-103_030320	MW-18-103_060420	MW-18-104_030420	MW-18-104_060220	MW-18-105_030320	MW-18-105_060420	MW-18-106_060220	MW-19_061120	MW-19-107_060320	MW-19-108_060320	MW-19-111_060320	MW-19-112_060420	MW-19-113_060520	MW-19-114_060420	MW-19-115_030420
Field																					
Conductance, specific	- -	- -	mS/cm	0.386	1.52	0.49	0.431	0.478	0.409	0.486	0.437	0.458	0.52	0.344	0.88	1.17	1.25	5.34	0.74	0.435	2.03
Dissolved oxygen (DO)	- -	- -	mg/L	5.23	1.37	2.5	1.45	1.68	0.42	0.5	0.05	0.18	0.72	1.9	0.45	0.72	1.17	1.13	5.5	0.22	0.22
Oxidation reduction potential (ORP), field	- -	- -	millivolts	38	-120.7	69.5	99.9	52.5	67.9	-7.8	101.2	-43.6	-0.3	125.6	-74.5	-11.7	33.8	-65.2	49.3	8	-10.9
pH	- -	- -	s.u.	7.6	6.85	6.94	7.16	6.96	7.29	7.08	7.09	7.15	6.99	7.41	6.7	6.63	6.68	6.38	7.17	7.17	7.01
Temperature, field	- -	- -	Deg C	13.8	13.3	11.3	6.1	12	6.6	13.5	6.1	12	13.3	16	12.2	11.7	11.7	16	14.7	11.9	12.9
Turbidity (field)	- -	- -	NTU	1.78	1.56	1.41	2.06	1.81	1.3	1.61	1.09	1.09	2.97	5.98	1.21	42.1	1.5	1.22	21.5	1.01	9.59
Volatile Organics																					
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2 [<2]	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10 [<10]	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<90 [<90]	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	**9**
1,1,1-Trichloroethane	200	89	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 [<50]	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 [<50]	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3 [4]**	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25 [<25]	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50 [<50]	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2 [<2]	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA

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Location ID:	P201 RES DW	P201 GSI		MW-18-100	MW-18-101	MW-18-102	MW-18-103	MW-18-103	MW-18-104	MW-18-104	MW-18-105	MW-18-105	MW-18-106	MW-19	MW-19-107	MW-19-108	MW-19-111	MW-19-112	MW-19-113	MW-19-114	MW-19-115
Date Collected:				06/03/20	06/05/20	06/02/20	03/03/20	06/04/20	03/04/20	06/02/20	03/03/20	06/04/20	06/02/20	06/11/20	06/03/20	06/03/20	06/03/20	06/04/20	06/05/20	06/04/20	03/04/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-18-100_060320	MW-18-101_060520	MW-18-102_060220	MW-18-103_030320	MW-18-103_060420	MW-18-104_030420	MW-18-104_060220	MW-18-105_030320	MW-18-105_060420	MW-18-106_060220	MW-19_061120	MW-19-107_060320	MW-19-108_060320	MW-19-111_060320	MW-19-112_060420	MW-19-113_060520	MW-19-114_060420	MW-19-115_030420
Semivolatile Organics																					
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Date Collected:				06/03/20	06/05/20	06/02/20	03/03/20	06/04/20	03/04/20	06/02/20	03/03/20	06/04/20	06/02/20	06/11/20	06/03/20	06/03/20	06/03/20	06/04/20	06/05/20	06/04/20	03/04/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-18-100_060320	MW-18-101_060520	MW-18-102_060220	MW-18-103_030320	MW-18-103_060420	MW-18-104_030420	MW-18-104_060220	MW-18-105_030320	MW-18-105_060420	MW-18-106_060220	MW-19_061120	MW-19-107_060320	MW-19-108_060320	MW-19-111_060320	MW-19-112_060420	MW-19-113_060520	MW-19-114_060420	MW-19-115_030420
Inorganics																					
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																					
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																					
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																					
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9	<8	<6.9	<7.4	<7.1	<6.9	<6.9	<7.4	<7.1 [<7.1]	<6.9	NA	<6.9	<7.4	<6.9	<7.1	<7.1	<7.1	NA
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9	<8	<6.9	<7.4	<7.1	<6.9	<6.9	<7.4	<7.1 [<7.1]	<6.9	NA	<6.9	<7.4	<6.9	<7.1	<7.1	<7.1	NA
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9	<8	<6.9	<7.4	<7.1	<6.9	<6.9	<7.4	<7.1 [<7.1]	<6.9	NA	<6.9	<7.4	<6.9	<7.1	<7.1	<7.1	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<6.9	<8	<6.9	<7.4	<7.1	<6.9	<6.9	<7.4	<7.1 [<7.1]	<6.9	NA	<6.9	<7.4	<6.9	<7.1	<7.1	<7.1	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<6.9	<8	<6.9	<7.4	<7.1	<6.9	<6.9	<7.4	<7.1 [<7.1]	<6.9	NA	<6.9	<7.4	<6.9	<7.1	<7.1	<7.1	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	<3.4	<4	<3.4	**4.1**	**2.2 J**	**1.6 J**	**2.0 J**	**3.5 J**	**3.8 [4.1]**	**3.0 J**	NA	**1.4 J**	**1.3 J**	**1.4 J**	<3.6	<3.6	<3.6	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**6.9**	<8	<6.9	<7.4	<7.1	<6.9	<6.9	**2.9 J**	**2.1 J [2.3 J]**	**2.3 J**	NA	**2.5 J**	<7.4	**2.3 J**	<14	**2.5 J**	<7.1	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**1.8 J**	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	**1.4 J**	<3.6	<3.6	<3.6	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**3.5**	<4	<3.4	**16.8**	**17.4**	**1.6 J**	**1.5 J**	**1.7 J**	**1.3 J [1.4 J]**	**5.5**	NA	**2.9 J**	<3.7	**1.4 J**	<3.6	<3.6	<3.6	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**3.1 J**	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	**1.2 J**	**1.2 J**	**1.7 J**	<3.6	**1.1 J**	<3.6	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**4.3**	<4	<3.4	**2.0 J**	<3.6	**6.5**	**6.0**	**12.4**	**8.9 [9.1]**	**3.8**	NA	**3.0 J**	**3.8**	**1.4 J**	<3.6	**1.8 J**	**1.9 J**	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**4.1**	<4	<3.4	<3.7	<3.6	**1.4 J**	**1.5 J**	**1.6 J**	**1.2 J [<3.6]**	<3.4	NA	**4.8**	**5.7**	**6.2**	<3.6	**2.7 J**	<3.6	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<3.4	<4	<3.4	**2.7 J**	**2.2 J**	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**2.2 J**	**1.7 J**	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	**2.7 J**	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<3.4	<4	<3.4	<3.7	<3.6	<3.4	<3.4	<3.7	<3.6 [<3.6]	<3.4	NA	<3.4	<3.7	<3.4	<3.6	<3.6	<3.6	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-19-115	MW-19-116	MW-19-116	MW-19-117	MW-19-118D	MW-19-118D	MW-19-118S	MW-19-118S	MW-19-119D	MW-19-119D	MW-19-119S	MW-19-119S	MW-19-120	MW-19-120	MW-19-121	MW-19-121	MW-19-122
Date Collected:	(DEQ2018)	(DEQ2018)	Units	06/03/20	03/04/20	06/03/20	06/03/20	03/03/20	06/05/20	03/03/20	06/05/20	03/02/20	06/03/20	03/02/20	06/03/20	03/04/20	06/04/20	03/03/20	06/04/20	03/04/20
Sample Name:				MW-19-115_060320	MW-19-116_030420	MW-19-116_060320	MW-19-117_060320	MW-19-118D_030220	MW-19-118D_060520	MW-19-118S_030220	MW-19-118S_060520	MW-19-119D_030220	MW-19-119D_060320	MW-19-119S_030220	MW-19-119S_060320	MW-19-120_030420	MW-19-120_060420	MW-19-121_030320	MW-19-121_060420	MW-19-122_030420
Field																				
Conductance, specific	- -	- -	mS/cm	2.85	1.45	1.94	1.06	1.74	1.68	3.71	2.26	1.04	1.08	1.19	1.24	2.18	2.22	0.97	1.28	4.08
Dissolved oxygen (DO)	- -	- -	mg/L	0.24	0.17	0.18	0.3	1.9	4.23	0.7	5.44	1.87	6.29	1.19	1.01	0.23	0.35	0.14	1.16	0.31
Oxidation reduction potential (ORP), field	- -	- -	millivolts	170.5	-48.7	-39	-133.7	2.8	29.7	26.6	-96.9	-27.4	29.1	-28.5	-50.2	-39.3	-36.5	-36	-26.3	-30.1
pH	- -	- -	s.u.	6.94	7	6.96	7.15	7.16	7.2	6.82	6.95	7.15	7.11	7.09	7.12	6.85	6.82	7.02	6.88	6.72
Temperature, field	- -	- -	Deg C	15.6	13.1	16.3	21.5	6.5	18.5	6.2	21.6	9.0	20.7	10.3	21.4	11.4	16.5	12.7	16.7	11.6
Turbidity (field)	- -	- -	NTU	16	1.68	2.5	117	6.2	9.03	0.02	8.81	0.02	9.31	0.2	9.61	12.1	22.7	13.4	60	0.02
Volatile Organics																				
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA
Bromobenzene	18	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Dibromomethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	NA
Iodomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<90	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	**13**	**60**	**61**	**2**	NA	NA	NA	NA	NA	NA	NA	NA	**198**	**184**	**119**	**115**	**41 [41]**
1,1,1-Trichloroethane	200	89	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Acetone	730	1,700	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromoform	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Carbon disulfide	800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chlorobenzene	100	25	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Trichloroethene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Chloroethane	430	1,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**40**	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Benzene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Methylene chloride	5	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Styrene	100	80	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Toluene	790	270	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Isopropyl benzene	800	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
o-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA

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Date Collected:	(DEQ2018)	(DEQ2018)	Units	06/03/20	03/04/20	06/03/20	06/03/20	03/03/20	06/05/20	03/03/20	06/05/20	03/02/20	06/03/20	03/02/20	06/03/20	03/04/20	06/04/20	03/03/20	06/04/20	03/04/20
Sample Name:				MW-19-115_060320	MW-19-116_030420	MW-19-116_060320	MW-19-117_060320	MW-19-118D_030220	MW-19-118D_060520	MW-19-118S_030220	MW-19-118S_060520	MW-19-119D_030220	MW-19-119D_060320	MW-19-119S_030220	MW-19-119S_060320	MW-19-120_030420	MW-19-120_060420	MW-19-121_030320	MW-19-121_060420	MW-19-122_030420
Semivolatile Organics																				
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	<0.20	<0.20 [<0.20]	**3.9**	**0.99**	**0.57**	**0.89**	**0.34 [0.38]**	**0.41 [0.44]**	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Date Collected:	(DEQ2018)	(DEQ2018)	Units	06/03/20	03/04/20	06/03/20	06/03/20	03/03/20	06/05/20	03/03/20	06/05/20	03/02/20	06/03/20	03/02/20	06/03/20	03/04/20	06/04/20	03/03/20	06/04/20	03/04/20
Sample Name:				MW-19-115_060320	MW-19-116_030420	MW-19-116_060320	MW-19-117_060320	MW-19-118D_030220	MW-19-118D_060520	MW-19-118S_030220	MW-19-118S_060520	MW-19-119D_030220	MW-19-119D_060320	MW-19-119S_030220	MW-19-119S_060320	MW-19-120_030420	MW-19-120_060420	MW-19-121_030320	MW-19-121_060420	MW-19-122_030420
Inorganics																				
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																				
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																				
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.10**	**0.14**	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.7**	**0.8**	NA
PFAS																				
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:	P201 RES DW	P201 GSI		MW-19-122	MW-19-123	MW-19-123	MW-19-124	MW-19-125	MW-19-125	MW-23	MW-91-2R	MW-91-2R	MW-91-5	MW-91-6	MWBP-10-UST5-6	MWBP-11-UST1-4	MWBP-12-UST1-4	P2-MW-02	P2-MW-04	P3-SB-28
Date Collected:				06/05/20	03/04/20	06/04/20	06/05/20	03/04/20	06/04/20	06/05/20	03/04/20	06/09/20	06/03/20	06/04/20	06/04/20	06/02/20	06/02/20	06/09/20	06/10/20	06/08/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-19-122_060520	MW-19-123_030420	MW-19-123_060420	MW-19-124_060520	MW-19-125_030420	MW-19-125_060420	MW-23_060520	MW-91-2R_030420	MW-91-2R_060920	MW-91-5_060320	MW-91-6_060420	MWBP-10-UST5-6_060420	MWBP-11-UST1-4_060220	MWBP-12-UST1-4_060220	P2-MW-02_060920	P2-MW-04_061020	P3-SB-28_060820
Field																				
Conductance, specific	- -	- -	mS/cm	4.08	1.96	2.08	2.06	1.42	1.67	1.21	1.15	1.31	0.496	1.3	2.81	1.18	0.42	0.45	1.53	0.41
Dissolved oxygen (DO)	- -	- -	mg/L	0.21	0.21	0.22	0.18	0.23	3.95	0.93	3.4	0.03	7.14	0.94	4.76	0.3	1.98	0.02	0.21	0.53
Oxidation reduction potential (ORP), field	- -	- -	millivolts	-47.4	-32.4	-9.5	41.1	-207.7	-199.7	-91.3	-147	-136.7	65.6	-123.8	-86.6	38.2	226.6	-9.9	-86.3	-9.7
pH	- -	- -	s.u.	6.74	6.9	6.86	6.83	7.87	7.39	7.09	7.29	7	7.21	7.6	7.3	9.66	8.05	6.87	7.21	7.69
Temperature, field	- -	- -	Deg C	17	11.4	15.4	16.4	7.5	21.3	14	12.5	16.1	14.7	19.2	13.1	17.9	16.4	14.6	17.4	18
Turbidity (field)	- -	- -	NTU	19.5	0.02	7.39	8.65	6.44	84.1	1.24	153	1.2	9.78	9.7	2.59	0.02	0.59	1.81	7.35	0.05
Volatile Organics																				
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	<2	<2	NA	NA	NA
Bromobenzene	18	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Dibromomethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	<10	<10	NA	NA	NA
Iodomethane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<90	<90	<90	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,4-Dioxane	7.2	280	ug/L	**42**	**76**	**75**	**197**	<1	NA	NA	NA	**5**	NA	NA	NA	NA	NA	NA	**31**	NA
1,1,1-Trichloroethane	200	89	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	<50	<50	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Acetone	730	1,700	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	<50	<50	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Bromoform	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Carbon disulfide	800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Chlorobenzene	100	25	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Trichloroethene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	**1**	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Chloroethane	430	1,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Benzene	5.0	200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	**1**	<1	NA	NA	NA
Methylene chloride	5	1,500	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Styrene	100	80	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Toluene	790	270	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<25	<25	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	<50	<50	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
Isopropyl benzene	800	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA
o-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	<1	<1	NA	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	**3**	<2	NA	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	<5	NA	NA	NA

See Notes on last page.

Table 4
Summary of Groundwater Analytical Results
January 2020 to June 2020
2020 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID:				MW-19-122	MW-19-123	MW-19-123	MW-19-124	MW-19-125	MW-19-125	MW-23	MW-91-2R	MW-91-2R	MW-91-5	MW-91-6	MWBP-10-UST5-6	MWBP-11-UST1-4	MWBP-12-UST1-4	P2-MW-02	P2-MW-04	P3-SB-28
Date Collected:	P201 RES DW	P201 GSI		06/05/20	03/04/20	06/04/20	06/05/20	03/04/20	06/04/20	06/05/20	03/04/20	06/09/20	06/03/20	06/04/20	06/04/20	06/02/20	06/02/20	06/09/20	06/10/20	06/08/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-19-122_060520	MW-19-123_030420	MW-19-123_060420	MW-19-124_060520	MW-19-125_030420	MW-19-125_060420	MW-23_060520	MW-91-2R_030420	MW-91-2R_060920	MW-91-5_060320	MW-91-6_060420	MWBP-10-UST5-6_060420	MWBP-11-UST1-4_060220	MWBP-12-UST1-4_060220	P2-MW-02_060920	P2-MW-04_061020	P3-SB-28_060820
Semivolatile Organics																				
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	<0.20	NA	NA	NA	**0.14 J**	**0.40**	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2,4,6-Trichlorophenol	120	5	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA	<4	<4
2,4-Dichlorophenol	73	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	<10	<10
2,4,5-Trichlorophenol	730	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2,4-Dimethylphenol	370	380	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2,4-Dinitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	<25	<25
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2,6-Dinitrotoluene	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2-Chloronaphthalene	1,800	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2-Chlorophenol	45	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	<10	<10
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
2-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	<10	<10
2-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	<25	<25
2-Nitrophenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
3&4-Methylphenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA	<20	<20
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Naphthalene	520	11	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
3-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	<25	<25
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA	<20	<20
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
4-Chloroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	<10	<10
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
4-Nitroaniline	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	<25	<25
4-Nitrophenol	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	<25	<25
Anthracene	43	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Acenaphthene	1,300	38	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Acenaphthylene	52	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Benzo(a)anthracene	2.1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
Benzo(a)pyrene	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
Benzo(g,h,i)perylene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
Benzo(k)fluoranthene	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
bis(2-Chloroethyl)ether	2	1	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Chrysene	1.6	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
Dibenz(a,h)anthracene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<2	<2
Dibenzofuran	- -	4	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA	<4	<4
Diethyl phthalate	5,500	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Dimethyl phthalate	73,000	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Fluoranthene	210	1.6	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	<1	<1
Fluorene	880	12	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Hexachlorobenzene	1	0.2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Hexachlorobutadiene	15	0.053	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	<10	<10
Hexachlorocyclopentadiene	50	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<2	<2
Isophorone	770	1,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Nitrobenzene	3.4	180	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
N-Nitrosodiphenylamine	270	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Pentachlorophenol	1	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Phenanthrene	52	2	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<2	<2
Phenol	4,400	450	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5
Pyrene	140	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	<5	<5

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Table 4
Summary of Groundwater Analytical Results
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Location ID:				MW-19-122	MW-19-123	MW-19-123	MW-19-124	MW-19-125	MW-19-125	MW-23	MW-91-2R	MW-91-2R	MW-91-5	MW-91-6	MWBP-10-UST5-6	MWBP-11-UST1-4	MWBP-12-UST1-4	P2-MW-02	P2-MW-04	P3-SB-28
Date Collected:	P201 RES DW	P201 GSI		06/05/20	03/04/20	06/04/20	06/05/20	03/04/20	06/04/20	06/05/20	03/04/20	06/09/20	06/03/20	06/04/20	06/04/20	06/02/20	06/02/20	06/09/20	06/10/20	06/08/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	MW-19-122_060520	MW-19-123_030420	MW-19-123_060420	MW-19-124_060520	MW-19-125_030420	MW-19-125_060420	MW-23_060520	MW-91-2R_030420	MW-91-2R_060920	MW-91-5_060320	MW-91-6_060420	MWBP-10-UST5-6_060420	MWBP-11-UST1-4_060220	MWBP-12-UST1-4_060220	P2-MW-02_060920	P2-MW-04_061020	P3-SB-28_060820
Inorganics																				
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**0.006**	NA	NA	**0.012**	**0.012**	**0.010**	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	<0.005	<0.005	**0.006**	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.003	NA	NA	<0.003	<0.003	<0.003	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	<0.005	<0.005	**0.010**	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																				
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																				
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFAS																				
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<7.1	<6.7	<7.1	NA	NA	NA	NA	NA	<7.1	NA	NA
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<7.1	<6.7	<7.1	NA	NA	NA	NA	NA	<7.1	NA	NA
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<7.1	<6.7	<7.1	NA	NA	NA	NA	NA	<7.1	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<7.1	<6.7	<7.1	NA	NA	NA	NA	NA	<7.1	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<7.1	<6.7	<7.1	NA	NA	NA	NA	NA	<7.1	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<7.1	<6.7	<7.1	NA	NA	NA	NA	NA	**3.4 J**	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	**1.2 J**	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<18	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<18	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	<3.6	<3.3	<3.6	NA	NA	NA	NA	NA	<3.6	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Table 4
Summary of Groundwater Analytical Results
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Location ID:	P201 RES DW	P201 GSI		P6-SB-07	P6-SB-07	PW-14-01	PW-14-02	PW-14-03	PW-14-03	TW-14-02	TW-14-02	TW-14-06	TW-15-11	TW-15-12	TW-15-12	UNK-10	UNK-11	UNK-15	UNK-15
Date Collected:	(DEQ2018)	(DEQ2018)	Units	03/04/20	06/04/20	06/09/20	06/03/20	03/03/20	06/10/20	03/04/20	06/04/20	03/03/20	03/03/20	03/03/20	06/02/20	06/08/20	06/08/20	03/03/20	06/05/20
Sample Name:				P6-SB-07_030420	P6-SB-07_060420	PW-14-01_060920	PW-14-02_060320	PW-14-03_030320	PW-14-03_061020	TW-14-02_030420	TW-14-02_060420	TW-14-06_030320	TW-15-11_030320	TW-15-12_030320	TW-15-12_060220	UNK-10_060820	UNK-11_060820	UNK-15_030320	UNK-15_060520
Field																			
Conductance, specific	- -	- -	mS/cm	0.63	0.73	3.2	2.21	2.64	2.09	5.21	5.14	2.43	3.46	1.49	2.31	0.31	0.34	0.399	0.69
Dissolved oxygen (DO)	- -	- -	mg/L	1.44	0.18	0.27	0.39	5.9	0.02	0.34	0.37	12.46	5.91	0.33	1.33	0.11	3.07	1.95	0.6
Oxidation reduction potential (ORP), field	- -	- -	millivolts	32.1	-91.6	-68.3	49	74	-19.2	-4.7	22.1	33.6	50.5	-17.1	27.9	-144.5	40.5	126.9	20.2
pH	- -	- -	s.u.	7.4	7.34	6.78	7	6.78	6.4	6.51	6.5	7.12	6.52	7.02	6.92	7.33	7.82	8.57	7.88
Temperature, field	- -	- -	Deg C	8.7	15.9	18.1	15.5	11.9	18.1	12.6	16.7	13.1	11.1	12.6	15.6	15.7	15.4	7.9	16.9
Turbidity (field)	- -	- -	NTU	1.18	2.2	1.57	0.02	0.02	9.12	0.02	3.32	0.02	3.1	8.1	691	1.42	10.2	1.49	10.3
Volatile Organics																			
1,1,1,2-Tetrachloroethane	77	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,2,3-Trichlorobenzene	- -	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
1,2,3-Trichloropropane	42	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,2,3-Trimethylbenzene	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Acrylonitrile	2.6	2	ug/L	NA	NA	NA	<2 [<2]	NA	NA	NA	<2	NA	NA	NA	NA	<2	<2	NA	NA
Bromobenzene	18	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Chlorobromomethane	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Dibromomethane	80	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Ethyl ether (diethyl ether)	10	- -	ug/L	NA	NA	NA	<10 [<10]	NA	NA	NA	<10	NA	NA	NA	NA	<10	<10	NA	NA
Iodomethane	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
N-Butylbenzene	80	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
N-Propylbenzene	80	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
tert-Butylbenzene (t-Butylbenzene)	80	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Tetrahydrofuran	95	11,000	ug/L	NA	NA	NA	<90 [<90]	NA	NA	NA	<90	NA	NA	NA	NA	<90	<90	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	**240 Y**	**160 [160]**	**75**	**65**	**470 Y**	**410 Y**	**23**	**130 Y**	**220 Y**	**210 Y**	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
2-Hexanone	1,000	- -	ug/L	NA	NA	NA	<50 [<50]	NA	NA	NA	<50	NA	NA	NA	NA	<50	<50	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Acetone	730	1,700	ug/L	NA	NA	NA	<50 [<50]	NA	NA	NA	<50	NA	NA	NA	NA	<50	<50	NA	NA
1,1,2-Trichloroethane	5.0	330	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Bromodichloromethane	80	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,1-Dichloroethane	880	740	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Bromoform	80	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,1-Dichloroethene	7.0	130	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Bromomethane (Methyl bromide)	10	5.0	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
1,2-Dichloroethane	5.0	360	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Carbon disulfide	800	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Carbon tetrachloride	5.0	38	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
cis-1,2-Dichloroethene	70	620	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Chlorobenzene	100	25	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
trans-1,2-Dichloroethene	100	1,500	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Chloroform (Trichloromethane)	80	350	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Trichloroethene	5.0	200	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Chloromethane (Methyl chloride)	260	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Tetrachloroethene	5.0	60	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
cis-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Vinyl chloride	2.0	13	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Chloroethane	430	1,100	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Benzene	5.0	200	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	**3**	NA	NA
Methyl acetate	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Methylene chloride	5	1,500	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Styrene	100	80	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Toluene	790	270	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
trans-1,3-Dichloropropene	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Xylene (total)	280	49	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Naphthalene	520	11	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	ug/L	NA	NA	NA	<25 [<25]	NA	NA	NA	<25	NA	NA	NA	NA	<25	<25	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	ug/L	NA	NA	NA	<50 [<50]	NA	NA	NA	<50	NA	NA	NA	NA	<50	<50	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
1,2,4-Trimethylbenzene	63	17	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,3,5-Trimethylbenzene	72	45	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,2-Dichloropropane	5.0	230	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
Cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl cyclohexane	- -	- -	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
Isopropyl benzene	800	28	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA
o-Xylene	- -	- -	ug/L	NA	NA	NA	<1 [<1]	NA	NA	NA	<1	NA	NA	NA	NA	<1	<1	NA	NA
m&p-Xylene	- -	- -	ug/L	NA	NA	NA	<2 [<2]	NA	NA	NA	<2	NA	NA	NA	NA	<2	<2	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	NA	NA	<5 [<5]	NA	NA	NA	<5	NA	NA	NA	NA	<5	<5	NA	NA

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Location ID:				P6-SB-07	P6-SB-07	PW-14-01	PW-14-02	PW-14-03	PW-14-03	TW-14-02	TW-14-02	TW-14-06	TW-15-11	TW-15-12	TW-15-12	UNK-10	UNK-11	UNK-15	UNK-15
Date Collected:	P201 RES DW	P201 GSI		03/04/20	06/04/20	06/09/20	06/03/20	03/03/20	06/10/20	03/04/20	06/04/20	03/03/20	03/03/20	03/03/20	06/02/20	06/08/20	06/08/20	03/03/20	06/05/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	P6-SB-07_030420	P6-SB-07_060420	PW-14-01_060920	PW-14-02_060320	PW-14-03_030320	PW-14-03_061020	TW-14-02_030420	TW-14-02_060420	TW-14-06_030320	TW-15-11_030320	TW-15-12_030320	TW-15-12_060220	UNK-10_060820	UNK-11_060820	UNK-15_030320	UNK-15_060520
Semivolatile Organics																			
1,2-Diphenylhydrazine	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,2-Dichlorobenzene	600	13	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,4-Dichlorobenzene	75	17	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
1,4-Dioxane	7.2	280	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**220 Y**	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,4,6-Trichlorophenol	120	5	ug/L	NA	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA	NA
2,4-Dichlorophenol	73	11	ug/L	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
2,4,5-Trichlorophenol	730	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,4-Dimethylphenol	370	380	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,4-Dinitrophenol	- -	- -	ug/L	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
2,4-Dinitrotoluene	7.7	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2,6-Dinitrotoluene	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2-Chloronaphthalene	1,800	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2-Chlorophenol	45	18	ug/L	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
2-Methylnaphthalene	260	19	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
2-Methylphenol	- -	- -	ug/L	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
2-Nitroaniline	- -	- -	ug/L	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
2-Nitrophenol	20	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
3&4-Methylphenol	- -	- -	ug/L	NA	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA	NA
3,3'-Dichlorobenzidine	1.1	0.3	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Naphthalene	520	11	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
3-Nitroaniline	- -	- -	ug/L	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
4,6-Dinitro-2-methylphenol	20	- -	ug/L	NA	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	NA	NA
1,2,4-Trichlorobenzene	70	99	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
4-Bromophenyl phenyl ether	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
4-Chloro-3-methylphenol	150	7.4	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
4-Chloroaniline	- -	- -	ug/L	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
4-Chlorophenyl phenyl ether	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
1,3-Dichlorobenzene	6.6	28	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
4-Nitroaniline	- -	- -	ug/L	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
4-Nitrophenol	- -	- -	ug/L	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA
Anthracene	43	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Acenaphthene	1,300	38	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Acenaphthylene	52	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Benzo(a)anthracene	2.1	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(a)pyrene	5	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(b)fluoranthene	1.5	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(g,h,i)perylene	1	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Benzo(k)fluoranthene	1	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
bis(2-Chloroethoxy)methane	- -	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
bis(2-Chloroethyl)ether	2	1	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
bis(2-Ethylhexyl)phthalate (DEHP)	6	14	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Butyl benzylphthalate (BBP)	1,200	67	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Chrysene	1.6	- -	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Dibenz(a,h)anthracene	2	- -	ug/L	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Dibenzofuran	- -	4	ug/L	NA	<4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4	NA	NA
Diethyl phthalate	5,500	110	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Dimethyl phthalate	73,000	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Di-n-butylphthalate (DBP)	880	9.7	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Di-n-octyl phthalate (DnOP)	130	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Fluoranthene	210	1.6	ug/L	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA
Fluorene	880	12	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Hexachlorobenzene	1	0.2	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Hexachlorobutadiene	15	0.053	ug/L	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA
Hexachlorocyclopentadiene	50	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Hexachloroethane	7.3	6.7	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Indeno(1,2,3-cd)pyrene	2	- -	ug/L	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Isophorone	770	1,300	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Nitrobenzene	3.4	180	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
N-Nitrosodi-n-propylamine	5	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
N-Nitrosodiphenylamine	270	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Pentachlorophenol	1	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Phenanthrene	52	2	ug/L	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA
Phenol	4,400	450	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA
Pyrene	140	- -	ug/L	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA

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Date Collected:	P201 RES DW	P201 GSI		03/04/20	06/04/20	06/09/20	06/03/20	03/03/20	06/10/20	03/04/20	06/04/20	03/03/20	03/03/20	03/03/20	06/02/20	06/08/20	06/08/20	03/03/20	06/05/20
Sample Name:	(DEQ2018)	(DEQ2018)	Units	P6-SB-07_030420	P6-SB-07_060420	PW-14-01_060920	PW-14-02_060320	PW-14-03_030320	PW-14-03_061020	TW-14-02_030420	TW-14-02_060420	TW-14-06_030320	TW-15-11_030320	TW-15-12_030320	TW-15-12_060220	UNK-10_060820	UNK-11_060820	UNK-15_030320	UNK-15_060520
Inorganics																			
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.100	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.05	4.5	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics-Filtered																			
Arsenic (dissolved)	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (dissolved)	- -	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper (dissolved)	1	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead (dissolved)	0.004	0.044	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																			
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	<0.5	<0.5	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**29**	NA	**0.03**	**0.31**	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	**22.4**	NA	**0.4**	**0.9**	NA	NA	NA	NA
PFAS																			
4:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9 [<6.9]	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.4	<7.1
6:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9 [<6.9]	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.4	<7.1
8:2 Fluorotelomer sulfonate (FTS)	- -	- -	ng/L	<6.9 [<6.9]	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.4	<7.1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<6.9 [<6.9]	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.4	<7.1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<6.9 [<6.9]	<6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.4	<7.1
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	**2.1 J [2.1 J]**	**5.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.9 J**	**1.7 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**220 [208]**	**254**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**15.8**	**15.1**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	<3.6
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	**27.1 [26.5]**	**27.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.2 J**	**2.1 J**
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	<3.6
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**13.6**	**16.0**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**700 [666]**	**759**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.7**	**11.1**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**3.0 J [2.7 J]**	**4.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10.6**	**12.7**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**760 [737]**	**885**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9.6**	**14.0**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	**2.0 J**
Perfluorononanoic acid (PFNA)	6	- -	ng/L	**86.9 [85.9]**	**92.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.3 J**	**4.7**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**54.9 [56.5]**	**57.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**810**	**913**
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**814 [792]**	**1,040**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**26.6**	**33.1**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	**1.1 J [<3.4]**	**1.8 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.5 J**	**1.8 J**
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**966 [914]**	**932**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**14.6**	**17.3**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	<3.6
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	<3.6
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<3.4 [<3.4]	<3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.7	<3.6
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See Notes on last page.

Notes:
Shading indicates result exceeding one or more MDEQ Part 201
Bold fonts represent data where detections were noted above the laboratory method detection limit.
Data shown in [ ] represent duplicate sample analytical results.
- - = Not listed in the MDEQ Criteria Tables.
mg/L - milligrams per liter
s.u. - standard unit
Deg. C. - degrees celcius
NTU - Nephelometric Turbidity Unit
ug/L - micrograms per liter
µS/cm - microSiemens per centimeter
NA - Not Analyzed

Lab and Validation Data Qualifiers:
J = The compound/constituent was positively identified; however, the
Y = Elevated reporting limit due to high target concentration.

FIGURES

FORMER APC FACILITY

MW-14-63 MW-12-02 P2-MW-01 P2-MW-03 MW-16-80 MW-20-126 TW-14-03 MW-13-42 TW-15-12 MW-13-43 MW-13-44 MW-13-45 P2-SB-20 P2-SB-03 MW-15-73 TW-14-04 TW-15-13 TW-14-05 PW-14-02 MW-19-118S/D MW-14-59 MW-16-85 MW-14-58 MW-19-125 MW-16-84 MW-14-60 MW-17-87 MW-16-82 MW-17-86 MW-16-83 LMW-12-02 LMW-14-14D LMW-12-08 PMW-02 MW-12-05R LMW-12-03S/D PMW-01 MW-15-72 LMW-12-01 LMW-12-07 MW-14-61 LMW-14-13D P2-SB-37 MW-19-120 MW-12-09 MW-14-57 LMW-15-17D LMW-14-15D MW-12-06 PMW-03 MW-14-56 LMW-12-06 LMW-12-04 P2-SB-06 LMW-12-05 LMW-14-12D MW-19-124 LMW-15-16D MW-14-62 MW-16-81 MW-20-130 MW-20-129 MW-19-122 MW-19-121 MW-16-79 TW-16-01 AS-16-02 MW-12-18 MW-14-55 TW-14-02 MW-16-74 MW-16-78 MW-14-54 AS-16-01 MW-16-76 TW-14-01 PW-14-01 MW-12-01 MW-16-77 MW-16-75 MW-12-07 MW-12-08 P2-MW-02 MW-13-51 MW-13-52 MW-13-50 MW-13-53 MW-12-17 MW-03(2) MW-02(2) MW-01(2)

MW-12-03 MW-12-10R MW-04-06R MW-12-11 MW-04-05 MW-03-02 MW-12-12 MW-14-70 MW-03-04 MW-03-05 MW-02-01(6) MW-12-13 MW-14-66 P6-SB-18 MW-14-69 P2-MW-04 MW-03-07 MW-02-03(6) MW-04-01(6) MW-02-02(6) MW-03-06 MW-14-68 P6-SB-37 SME-MW-02 MW-14-67 MW-04-04R MW-03-08 P6-SB-35 MW-13-36R P6-SB-21 P6-SB-07 MWBP-12-UST5-6 MWBP-13A-UST1-4 MWBP-12-UST1-4 MWBP-11-UST1-4 MWBP-12A-UST1-4 UNK-03 MWBP-10-UST5-6 MWBP-10-UST1-4 B:BP16 P6-MW-01 MWBP-10A-UST1-4 MW-12-14 MW-13-35 MW-12-15 MW-12-16

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL

APPROXIMATE PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

0 250 500

SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANTS 2 AND 6 MONITORING WELLS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1a

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\2020_AnnualReport\FIG 2 P2&6 Monitoring Wells.mxd PLOTTED: 10/1/2020 9:45:06 AM BY: KPullen

MW-04-04
MW-91-4
MW-13-39B
MW-88-1
MW-19-113
MW-18-97
MW-18-98
MW-19-112
MW-02-04(3)
MW-13-40
MW-02-03(3)
MW-12-04
MW-19-110
MW-04-03
MW-04-02
MW-18-89
MW-13-38
MW-91-3
P3-SB-07
MW-18-90
MW-13-41
MW-18-103
MW-18-102
MW-02-02(3)
MW-93-1
MW-19-107
MW-91-2
UNK-13
UNK-15
MW-06
MW-04
MW-03(3)
MW-18-92
MW-18-101
LMW-12-09
MW-05
MW-18-93
MW-13-37
MW-19
MW-23
MW-18-88
CH-14-RO
UNK-14
UNK-11
MW-02(3)
MW-19-108
UNK-09
UNK-10
MW-01(3)
MW-18-105
MW-13-104
MW-22
MW-18-91
MW-19-111
MW-12-19
LMW-12-11
P3-SB-28
LMW-12-10
MW-14-65
MW-18-94
MW-18-95
MW-19-114
MW-18-96
MW-06(3)
MW-18-100
MW-13-26
MW-15-7I
MW-02-01(3)
MW-12-20
MW-04-01(3)
MW-13-30
MW-13-24
MW-13-22
MW-13-28
MW-13-27
MW-91-5
MW-13-23
MW-12-21
MW-14-64
TW-14-07
TW-14-06
TW-14-08
TW-14-09
TW-15-10
PW-14-03
TW-15-11
MW-13-31
MW-13-32
MW-19-119S/D
MW-13-29
MW-13-25
MW-13-33
MW-13-48
MW-13-49
MW-91-6
MW-13-47
MW-13-34
MW-13-46
MW-12-03

LEGEND

- LNAPL MONITORING WELL
- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL

APPROXIMATE PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

0 275 550
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANT 3 MONITORING WELL LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1b

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\2020_AnnualReport\FIG 3 P3 Monitoring Wells.mxd PLOTTED: 9/2/2020 2:19:40 PM BY: KPullen

MW-14-58
6/9/2020: 38

MW-14-59
6/9/2020: 56

MW-14-60
6/9/2020: 107

MW-03-05

MW-02-03(6)
6/3/2020: 15

P2-MW-04
6/10/2020: 31

MW-12-09

MW-14-57

MW-03-06

MW-14-62
6/9/2020: 27

0 400 800
SCALE IN FEET

Legend

MONITORING WELLS

- PERCHED ZONE MONITORING WELL
- WELLS SAMPLED AND 1,4-DIOXANE EXCEEDS DW CRITERIA (7.2 ug/L)
- WELLS SAMPLED AND 1,4-DIOXANE DOES NOT EXCEED DW CRITERIA
- PERCHED 1,4-DIXANE IMPACTS > DW CRITERIA
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

APPROXIMATE EXTENT OF IMPACTS/PLUMES SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM FIRST QUARTER AND SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

ug/L: MICROGRAMS PER LITER.

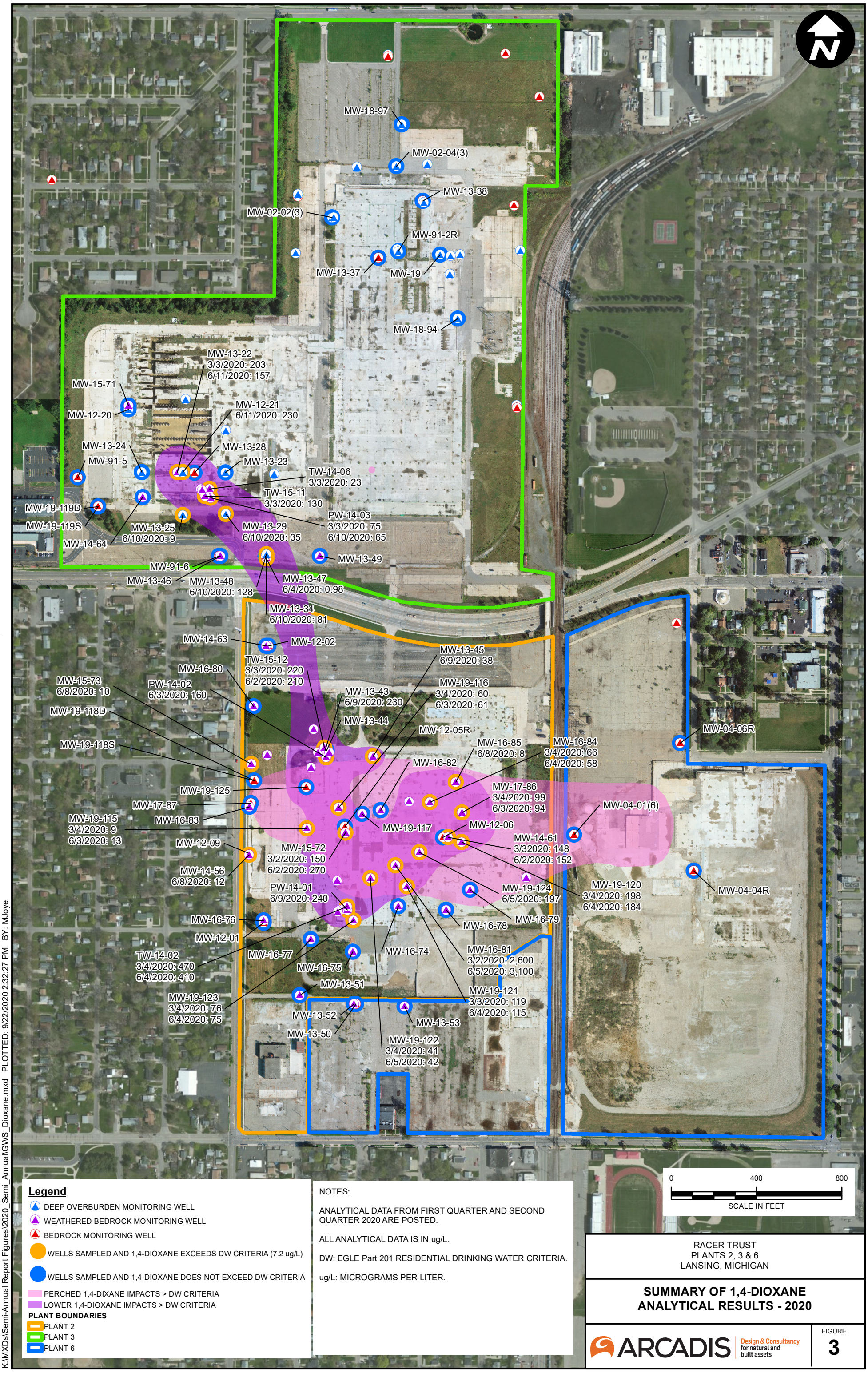
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF 1,4-DIOXANE PERCHED WELLS ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\Semi-Annual Report Figures\2020_Semi_Annual\GWS_Dioxane_PerchedWells.mxd PLOTTED: 9/22/2020 2:58:18 PM BY: MJoye



Legend

- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND 1,4-DIOXANE EXCEEDS DW CRITERIA (7.2 ug/L)
- WELLS SAMPLED AND 1,4-DIOXANE DOES NOT EXCEED DW CRITERIA
- PERCHED 1,4-DIXANE IMPACTS > DW CRITERIA
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

ANALYTICAL DATA FROM FIRST QUARTER AND SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

ug/L: MICROGRAMS PER LITER.

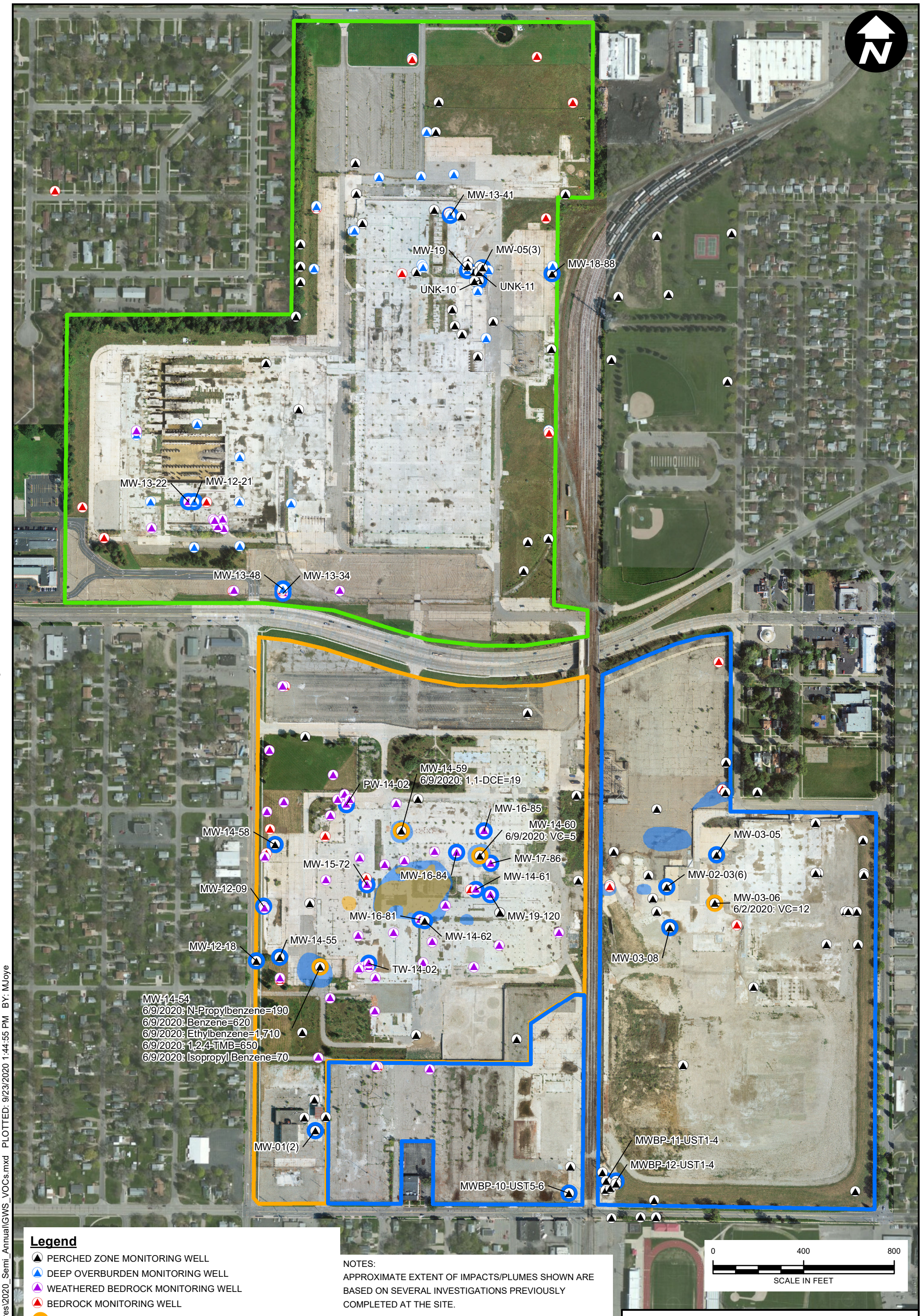
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF 1,4-DIOXANE ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\Semi-Annual Report Figures\2020_Semi_Annual\GWS_Dioxane.mxd PLOTTED: 9/22/2020 2:32:27 PM BY: MJoye



Legend

- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND VOC'S EXCEEDS DW CRITERIA
- WELLS SAMPLED AND VOC'S DOES NOT EXCEED DW CRITERIA
- APPROXIMATE EXTENT LNAPL
- EXTENT VOCs IN PERCHED ZONE> DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

APPROXIMATE EXTENT OF IMPACTS/PLUMES SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM FIRST QUARTER AND SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.
ug/L: MICROGRAMS PER LITER.
VC: VINYL CHLORIDE.
1,1-DCE: 1,1-DICHLOROETHENE.
1,2,4-TMB: 1,2,4-TRIMETHYLBENZENE.

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF VOC ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\Semi-Annual Report Figures\2020_Semi_Annual\GWS_VOCs.mxd PLOTTED: 9/23/2020 1:44:55 PM BY: MJoye

MW-02-04(3)
6/8/2020: Arsenic=0.071

CH-14-RO
6/8/2020: Chromium=7.21
6/8/2020: Chromium VI=8

MW-91-2R

MW-18-88

MW-13-32
6/8/2020: Nickel=0.185

MW-12-13

MW-14-66

MW-14-67

MW-13-36R
6/4/2020: Vanadium=0.005

MWBP-11-UST1-4
6/2/2020: Arsenic=0.012

MWBP-12-UST1-4
6/2/2020: Arsenic=0.010
6/2/2020: Vanadium=0.010

MWBP-10-UST5-6
6/4/2020: Arsenic=0.012

0 400 800
SCALE IN FEET

Legend

- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND METALS EXCEED DW CRITERIA
- WELLS SAMPLED AND METALS DOES NOT EXCEED DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

ALL ANALYTICAL DATA FROM SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN mg/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

mg/L: MILLIGRAMS PER LITER.

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF METALS ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\Semi-Annual Report Figures\2020_Semi_Annual\GWS_METALS.mxd PLOTTED: 9/22/2020 2:18:00 PM BY: MJoye

MW-19-113
MW-18-98
3/2/2020: 75.2
6/3/2020: 80
MW-18-97
MW-19-112
MW-02-04(3)
MW-18-89
3/3/2020: 120
6/8/2020: 150
MW-18-99
3/2/2020: 46.7
6/2/2020: 62.1
MW-18-90
3/3/2020: 920
6/5/2020: 932
MW-19-107
MW-91-2R
UNK-15
3/3/2020: 810
6/5/2020: 913
MW-18-93
MW-18-103
3/3/2020: 2
MW-18-102
MW-18-92
MW-18-101
MW-18-88
3/2/2020: 46.1
6/4/2020: 78.2
MW-19-108
CH-14-RO
6/8/2020: 12,900
MW-23
MW-18-104
MW-18-105
3/3/2020: 12.4
6/4/2020: 8.9
MW-19-111
6/3/2020: 1.4
MW-18-91
3/2/2020: 47.1
6/5/2020: 51.6
MW-18-94
MW-18-96
MW-18-95
3/2/2020: 38.1
6/5/2020: 37.3
MW-19-114
MW-18-106
MW-18-100
MW-04-06R
MW-12-12
3/3/2020: 40.6
6/3/2020: 45.4
MW-04-05(6)
MW-14-59
MW-12-11
MW-14-58
MW-14-60
6/9/2020: 13.2
MW-14-70
MW-03-07
MW-15-72
MW-14-61
MW-12-13
MW-12-09
MW-14-56
MW-16-81
MW-14-67
MW-03-08
MW-04-04R
MW-13-36R
3/4/2020: 44.5
6/4/2020: 46.7
MW-12-18
MW-14-62
6/9/2020: 50.2
P2-MW-02
P6-SB-07
3/4/2020: 54.9
6/4/2020: 57.2

Legend

- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND PFOS EXCEEDS GSI CRITERIA (12ng/L) AND DW CRITERIA (16 ng/L)
- WELLS SAMPLED AND PFOS EXCEEDS GSI CRITERIA (12ng/L)
- WELLS SAMPLED AND PFOS DOES NOT EXCEED GSI OR DW CRITERIA
- PFOS IN PERCHED GROUNDWATER (>12 ng/L)

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

APPROXIMATE EXTENT OF IMPACTS/PLUMES IN SHOWN ARE BASED ON SEVERAL INVESTIGATIONS PREVIOUSLY COMPLETED AT THE SITE.

ANALYTICAL DATA FROM FIRST QUARTER AND SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

GSI: EGLE PART 201 GROUNDWATER SURFACE WATER INTERFACE CRITERION.

PFOS: PERFLUOROOCTANE SULFONIC ACID

ng/L: NANOGRAM PER LITER.

0 400 800
SCALE IN FEET

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFOS ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\Semi-Annual Report Figures\2020_Semi_Annual\GWS_PFOS.mxd PLOTTED: 9/23/2020 2:18:33 PM BY: MJoye

MW-19-113
MW-18-98
3/2/2020: 9.4
6/3/2020: 17.1
MW-18-97
MW-19-112
MW-02-04(3)
MW-18-89
3/3/2020: 10.1
6/8/2020: 14.1
MW-18-99
MW-18-90
3/3/2020: 12.6
6/5/2020: 13.3
UNK-15
3/3/2020: 26.6
6/5/2020: 33.1
MW-19-107
MW-18-92
MW-91-2R
MW-23
MW-18-101
MW-19-108
MW-18-91
3/2/2020: 7.9
6/5/2020: 8.2
CH-14-RO
6/8/2020: 69.2
MW-19-111
MW-18-96
MW-18-94
MW-18-95
MW-18-100
MW-18-103
MW-18-102
MW-18-93
MW-18-88
MW-18-104
MW-18-105
MW-19-114
MW-18-106
MW-04-05(6)
6/3/2020: 23.9
MW-04-06R
MW-12-12
3/3/2020: 69.7
6/3/2020: 60.9
MW-12-11
MW-14-58
MW-14-59
MW-14-60
6/9/2020: 19.7
MW-14-70
3/4/2020: 37.2
6/3/2020: 42.8
MW-03-07
MW-15-72
MW-14-61
MW-12-13
MW-12-09
6/8/2020: 12.6
MW-16-81
MW-14-67
3/4/2020: 11.9
6/4/2020: 10.7
MW-14-56
MW-03-08
MW-04-04R
MW-12-18
MW-14-62
6/9/2020: 36.5
MW-13-36R
3/4/2020: 72.1
6/4/2020: 66.9
P2-MW-02
P6-SB-07
3/4/2020: 814
6/4/2020: 1,040

0 400 800
SCALE IN FEET

Legend

- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND PFOA EXCEEDS DW CRITERIA (8 ng/L)
- WELLS SAMPLED AND PFOA DOES NOT EXCEED DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

ALL ANALYTICAL DETECTIONS FROM FIRST QUARTER AND SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

PFOA: PERFLUOROOCTANOIC ACID

ng/L: NANOGRAM PER LITER.

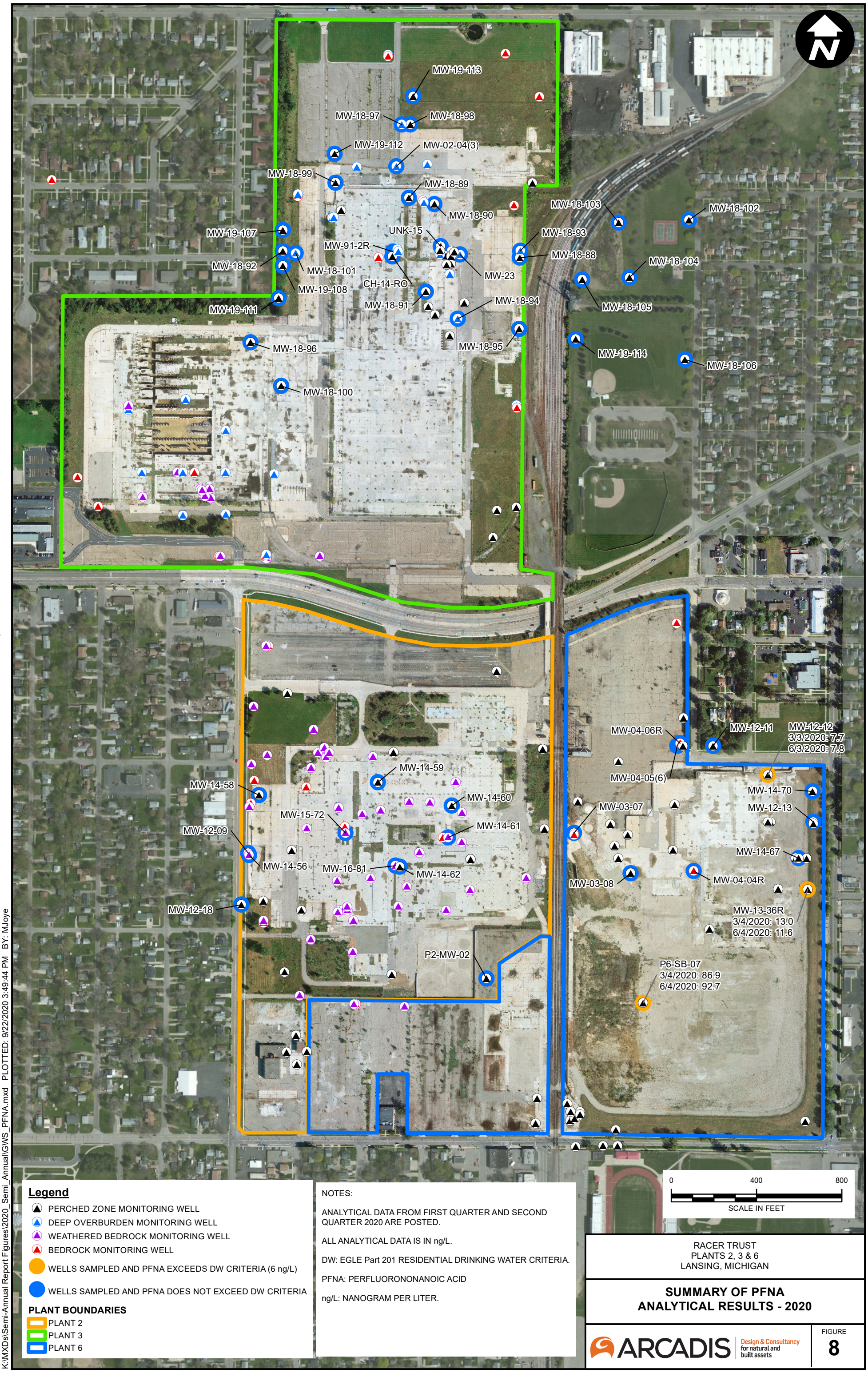
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFOA ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
K:\MXDs\Semi-Annual Report Figures\2020_Semi_Annual\GWS_PFOA.mxd PLOTTED: 9/22/2020 3:29:02 PM BY: MJoye



Legend

- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND PFNA EXCEEDS DW CRITERIA (6 ng/L)
- WELLS SAMPLED AND PFNA DOES NOT EXCEED DW CRITERIA

PLANT BOUNDARIES

- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

ANALYTICAL DATA FROM FIRST QUARTER AND SECOND QUARTER 2020 ARE POSTED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

PFNA: PERFLUORONONANOIC ACID

ng/L: NANOGRAM PER LITER.

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFNA ANALYTICAL RESULTS - 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 8

CITY: Novi DIV: ENV PIC: J. BARRETT PM: R. CHRISTENSEN TM: A. LORENZ TR: J. SALING PROJECT NUMBER: 30042872.03600 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
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ATTACHMENT 1

First and Second Quarter 2020 Groundwater Sampling Logs

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-12-12			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	6.88	**Total Depth (ft-bmp)**	17.2	**Water Column(ft)**	10.32	**Gallons in Well**	1.68
MP Elevation	NA	**Pump Intake (ft-bmp)**	15.2	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	16:25	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	15:50						
Purge End:	16:30						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:55	0	200	8.44	0.26	7.98	0.428	3.18	0.49	8.6	99.4	Clear	None
16:00	5	200	9.36	0.53	7.93	0.429	2.93	0.15	8.6	101.9	Clear	None
16:05	5	200	9.63	0.79	7.89	0.439	2.39	0.29	8.5	102.8	Clear	None
16:10	5	200	9.63	1.06	7.85	0.465	1.97	0.23	8.5	102.4	Clear	None
16:15	5	200	9.63	1.32	7.81	0.484	1.55	0.17	8.6	103.4	Clear	None
16:20	5	200	9.63	1.59	7.8	0.487	1.25	0.15	8.5	104	Clear	None
16:25	5	200	9.63	1.85	7.78	0.489	1.02	0.14	8.5	104.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: no

Well Locked at Departure: no

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-12-13			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	9.49	**Total Depth (ft-bmp)**	25.5	**Water Column(ft)**	16.01	**Gallons in Well**	2.6
MP Elevation	NA	**Pump Intake (ft-bmp)**	23.5	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	10:00	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	09:15						
Purge End:	10:05						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:20	0	200	9.54	0.26	7.49	0.75	5.91	2.63	8.6	205.2	Clear	None
09:25	5	200	9.54	0.53	7.59	0.75	2.49	2.31	8.9	197.3	Clear	None
09:30	5	200	9.54	0.79	7.58	0.75	2.13	2.04	8.9	196.5	Clear	None
09:35	5	200	9.54	1.06	7.56	0.74	1.8	1.63	9.1	188.2	Clear	None
09:40	5	200	9.54	1.32	7.52	0.72	1.59	1.3	9	164	Clear	None
09:45	5	200	9.54	1.59	7.52	0.72	1.52	1.11	9.1	146.5	Clear	None
09:50	5	200	9.54	1.85	7.52	0.71	1.28	0.9	9.2	129.7	Clear	None
09:55	5	200	9.54	2.11	7.5	0.68	1.24	0.87	9.2	125.6	Clear	None
10:00	5	200	9.54	2.38	7.5	0.66	1.2	0.85	9.2	121.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-13-22			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cool, windy, overcast
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.49	**Total Depth (ft-bmp)**	96	**Water Column(ft)**	33.51	**Gallons in Well**	5.45
MP Elevation	NA	**Pump Intake (ft-bmp)**	92	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	15:00	**Gallons Purged**		**Replicate/ Code No.**	MS/MSD	**Evacuation Method**	Bladder
Purge Start:	14:20						
Purge End:	14:55						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:25	0	50	62.5	0.00	6.81	1.92	6.27	0.5	11.7	-20.1	Clear	None
14:30	5	50	62.5	0.00	6.81	1.95	23.7	0.46	12.1	-35.2	Clear	None
14:35	5	50	62.5	0.00	6.82	1.97	24.2	0.29	11.6	-40.1	Clear	None
14:40	5	50	62.5	0.00	6.82	1.97	27.6	0.25	11.5	-41.7	Clear	None
14:45	5	50	62.5	0.00	6.82	1.98	24.1	0.25	11.4	-44.1	Clear	None
14:50	5	50	62.5	0.00	6.82	1.98	23.3	0.23	11.7	-44.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-13-36R	**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Cloudy, 40F

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	4.56	**Total Depth (ft-bmp)**	12.17	**Water Column(ft)**	7.61	**Gallons in Well**	1.24
MP Elevation	NA	**Pump Intake (ft-bmp)**	10.17	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	12:05	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	11:35						
Purge End:	12:10						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:40	0	200	4.6	0.26	11.89	1.12	3.82	0.09	6	156.7	Clear	None
11:45	5	200	4.6	0.53	11.91	1.12	2.18	0.09	6	157.8	Clear	None
11:50	5	200	4.6	0.79	11.91	1.09	1.48	0.07	5.9	159.4	Clear	None
11:55	5	200	4.6	1.06	11.93	1.06	1.28	0.07	5.9	161.2	Clear	None
12:00	5	200	4.6	1.32	11.96	1.03	1.2	0.07	5.9	162.4	Clear	None
12:05	5	200	4.6	1.59	11.98	1.03	1.25	0.06	5.9	164	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-14-61			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 37°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	64.19	**Total Depth (ft-bmp)**	77.49	**Water Column(ft)**	13.3	**Gallons in Well**	2.16
MP Elevation	NA	**Pump Intake (ft-bmp)**	72	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:05	**Gallons Purged**	2.50	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:20						
Purge End:	10:05						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:25	0	126	64.24	0.09	6.98	1.17	53.7	6.81	9.7	50.2	Clear	None
09:30	5	125	64.26	0.16	6.98	1.27	43.3	2.97	12.2	-15.5	Clear	None
09:35	5	125	64.23	0.26	7.01	1.27	35.7	1.13	12.5	-33.4	Clear	None
09:40	5	125	64.24	0.37	7.01	1.28	26.4	1	12.6	-39.7	Clear	None
09:45	5	125	64.15	0.48	7	1.3	15.4	1.3	12.6	-43	Clear	None
09:50	5	125	64.24	0.58	7	1.32	12.6	1.27	12.7	-43.5	Clear	None
09:55	5	125	64.14	0.69	7	1.34	12.5	1.44	12.6	-43.4	Clear	None
10:00	5	125	64.14	0.79	7	1.35	12.9	1.5	12.7	-42.7	Clear	None
10:05	5	125	64.18	0.90	7	1.35	13.2	1.6	12.7	-42.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL
Total P, TKN	250 mL Plastic	1	H2SO4
Nitrate-N	125 mL Plastic	1	None

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-14-67			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	4.6	**Total Depth (ft-bmp)**	20.8	**Water Column(ft)**	16.2	**Gallons in Well**	2.63
MP Elevation	NA	**Pump Intake (ft-bmp)**	18.8	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	11:05	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	10:40						
Purge End:	11:10						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:45	0	200	5.08	0.26	7.43	1.06	6.15	0.62	7.8	113	Clear	None
10:50	5	200	5.08	0.53	7.42	1.12	3.92	0.22	8.2	117	Clear	None
10:55	5	200	5.08	0.79	7.42	1.13	2.44	0.21	8.2	117.6	Clear	None
11:00	5	200	5.08	1.06	7.39	1.17	1.9	0.19	8.2	120.4	Clear	None
11:05	5	200	5.08	1.06	7.39	1.17	1.82	0.18	8.2	121.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-14-70			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	9.6	**Total Depth (ft-bmp)**	23.1	**Water Column(ft)**	13.5	**Gallons in Well**	2.19
MP Elevation	NA	**Pump Intake (ft-bmp)**	21.1	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	08:50	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	08:20						
Purge End:	08:55						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:25	0	200	10.19	0.26	7.14	0.95	2.16	1.45	8.2	239.3	Clear	None
08:30	5	200	10.26	0.53	7.18	0.95	1.86	1.48	8.2	233.4	Clear	None
08:35	5	200	10.46	0.79	7.27	0.95	1.43	1.24	8.3	222.1	Clear	None
08:40	5	200	10.52	1.06	7.31	0.95	1.33	1.09	8.4	216.2	Clear	None
08:45	5	200	10.57	1.32	7.31	0.95	1.21	1.1	8.3	215.8	Clear	None
08:50	5	200	10.6	1.32	7.31	0.95	1.11	1.09	8.3	213.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-15-72			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 46°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	57	**Total Depth (ft-bmp)**	70.33	**Water Column(ft)**	13.33	**Gallons in Well**	2.17
MP Elevation	NA	**Pump Intake (ft-bmp)**	65	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:00	**Gallons Purged**	2.50	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	13:25						
Purge End:	14:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:30	0	200	57.88	0.13	7.05	0.76	18.6	1.22	13.4	-17.8	Clear	None
13:35	5	200	58.01	0.26	7.05	0.76	16	1.01	13.3	-35.8	Clear	None
13:40	5	200	57.96	0.40	7.04	0.76	15.9	1.02	13.3	-43.3	Clear	None
13:45	5	200	57.99	0.53	7.06	0.77	17.2	0.77	13.5	-50	Clear	None
13:50	5	200	57.9	0.66	7.06	0.78	28.5	0.68	13.3	-51.9	Clear	None
13:55	5	200	57.84	0.79	7.05	0.83	26.3	0.62	13.1	-54.7	Clear	None
14:00	5	200	57.88	0.92	7.07	0.86	24.9	0.63	13.3	-56.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-16-74			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 48°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.85	**Total Depth (ft-bmp)**	73.69	**Water Column(ft)**	10.84	**Gallons in Well**	1.76
MP Elevation	NA	**Pump Intake (ft-bmp)**	68	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	15:25	**Gallons Purged**	2.50	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	14:50						
Purge End:	15:25						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:55	0	125	62.91	0.11	7	1.76	16.5	1.43	12.9	-12.3	Clear	None
15:00	5	125	62.94	0.21	7.02	1.78	40	0.3	13	-28.1	Clear	None
15:05	5	125	62.9	0.32	7.03	1.78	38.8	0.23	13	-36.5	Clear	None
15:10	5	125	62.86	0.42	7.03	1.78	33.4	0.31	13.1	-41.5	Clear	None
15:15	5	125	62.9	0.53	7.03	1.77	32.8	0.51	13	-43.1	Clear	None
15:20	5	125	62.9	0.63	7.03	1.76	30.3	0.43	13	-44.4	Clear	None
15:25	5	125	62.95	0.74	7.04	1.71	27.6	0.44	13	-45.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	3004282	**Well ID**	MW-16-81	**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Sunny, 45°

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	63.04	**Total Depth (ft-bmp)**	77.28	**Water Column(ft)**	14.24	**Gallons in Well**	2.31
MP Elevation	NA	**Pump Intake (ft-bmp)**	72	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time: 16:35 **Purge Start:** 15:55 **Purge End:** 16:35		**Gallons Purged**	3.00	**Replicate/ Code No.**	DUP-01	**Evacuation Method**	Bladder

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:00	0	150	63.55	0.11	7.07	1.32	10.3	1.05	13.7	-59.8	Clear	None
16:05	5	150	63.8	0.26	7.07	1.32	4.86	0.27	13.7	-68.1	Clear	None
16:10	5	150	63.95	0.40	7.07	1.32	9.69	0.15	13.8	-71.5	Clear	None
16:15	5	150	64	0.53	7.07	1.32	23.5	0.19	13.7	-73.6	Clear	None
16:20	5	150	64.01	0.66	7.07	1.31	26.3	0.23	13.6	-74	Clear	None
16:25	5	150	63.98	0.79	7.07	1.31	25.9	0.34	13.7	-73.9	Clear	None
16:30	5	150	64	0.92	7.07	1.31	23.5	0.37	13.6	-73.1	Clear	None
16:35	5	150	64	1.06	7.07	1.31	22.9	0.4	13.6	-72.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	6	HCL

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-16-84			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 34°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	65.16	**Total Depth (ft-bmp)**	81.18	**Water Column(ft)**	16.02	**Gallons in Well**	2.6
MP Elevation	NA	**Pump Intake (ft-bmp)**	73	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	09:10	**Gallons Purged**	2.00	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	08:35						
Purge End:	09:10						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:40	0	125	65.45	0.13	6.64	0.83	77.6	6.04	8.9	136.2	Clear	None
08:45	5	125	66.03	0.26	6.92	0.87	56.6	0.46	11.9	71.7	Clear	None
08:50	5	125	66.29	0.40	7.04	0.9	38.8	0.41	12	53.2	Clear	None
08:55	5	125	66.59	0.53	7.09	0.94	27.7	0.27	12.1	35	Clear	None
09:00	5	125	66.63	0.66	7.09	0.96	12.3	0.23	12.1	26.6	Clear	None
09:05	5	125	66.74	0.79	7.11	0.98	11	0.2	12	17.8	Clear	None
09:10	5	125	66.82	0.92	7.1	0.98	12	0.21	12.1	13.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-17-86			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 36°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	63.79	**Total Depth (ft-bmp)**	81.44	**Water Column(ft)**	17.65	**Gallons in Well**	2.87
MP Elevation	NA	**Pump Intake (ft-bmp)**	74	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:10	**Gallons Purged**	2.00	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:40						
Purge End:	10:10						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:45	0	125	63.64	0.13	7.14	0.99	6.73	0.41	11.5	47.7	Clear	None
09:50	5	125	63.75	0.26	7.04	1.17	2.24	0.19	12.3	18.6	Clear	None
09:55	5	125	63.74	0.40	7	1.22	2.33	0.15	12.3	-2.1	Clear	None
10:00	5	125	63.65	0.53	6.99	1.24	1.69	0.13	12.2	-13.5	Clear	None
10:05	5	125	63.66	0.66	7	1.23	1.11	0.15	12	-21.5	Clear	None
10:10	5	125	63.66	0.79	6.99	1.23	0.76	0.15	11.9	-25.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-88			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	3.34	**Total Depth (ft-bmp)**	15	**Water Column(ft)**	11.66	**Gallons in Well**	1.89
MP Elevation	NA	**Pump Intake (ft-bmp)**	13	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	16:50	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	16:30						
Purge End:	16:55						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:35	0	200	3.53	0.26	6.99	0.445	3.03	0.04	6.7	73.7	Clear	None
16:40	5	200	3.53	0.53	7.06	0.442	2.47	0.04	6.5	70.6	Clear	None
16:45	5	200	3.53	0.79	7.11	0.441	1.77	0.04	6.5	68.1	Clear	None
16:50	5	200	3.53	1.06	7.17	0.443	1.66	0.03	6.5	67.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-89			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	7.76	**Total Depth (ft-bmp)**	15.6	**Water Column(ft)**	7.84	**Gallons in Well**	1.27
MP Elevation	NA	**Pump Intake (ft-bmp)**	13.6	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	12:30	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	12:05						
Purge End:	12:35						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:10	0	200	8.68	0.26	7.98	0.423	10.1	0.13	7	182.4	Clear	None
12:15	5	200	9.1	0.53	8.01	0.422	3.94	0.15	6.9	181.7	Clear	None
12:20	5	200	10.15	0.79	8	0.419	2.08	0.16	6.7	182.1	Clear	None
12:25	5	200	10.67	1.06	8.03	0.42	1.88	0.15	6.6	179.4	Clear	None
12:30	5	200	10.94	1.32	8.03	0.42	1.48	0.15	6.5	177.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-90			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	9.38	**Total Depth (ft-bmp)**	23.15	**Water Column(ft)**	13.77	**Gallons in Well**	2.24
MP Elevation	NA	**Pump Intake (ft-bmp)**	21.15	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	13:30	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	13:00						
Purge End:	13:35						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:05	0	200	9.78	0.26	12.46	1.69	7.63	1.14	10.6	131.3	Clear	None
13:10	5	200	9.78	0.53	12.47	1.74	3.83	0.83	10.6	129	Clear	None
13:15	5	200	9.78	0.79	12.46	1.75	1.91	0.68	10.8	127	Clear	None
13:20	5	200	9.78	1.06	12.48	1.77	1.66	0.6	10.7	124.6	Clear	None
13:25	5	200	9.78	1.32	12.48	1.81	1.5	0.44	10.7	122	Clear	None
13:30	5	200	9.78	1.59	12.48	1.81	1.22	0.41	10.7	121.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-91			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	5.94	**Total Depth (ft-bmp)**	14.98	**Water Column(ft)**	9.04	**Gallons in Well**	1.47
MP Elevation	NA	**Pump Intake (ft-bmp)**	12.98	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	16:05	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	15:40						
Purge End:	16:10						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:45	0	200	6.65	0.26	7.58	0.487	12.4	0.4	8	115.1	Clear	None
15:50	5	200	7.2	0.53	7.54	0.483	3.81	0.18	7.7	117.7	Clear	None
15:55	5	200	8.01	0.79	7.67	0.482	2.26	0.08	7.5	109.2	Clear	None
16:00	5	200	8.21	1.06	7.69	0.481	1.8	0.08	7.5	107.3	Clear	None
16:05	5	200	8.33	1.32	7.75	0.483	1.76	0.07	7.6	104.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-95			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	6.76	**Total Depth (ft-bmp)**	12.45	**Water Column(ft)**	5.69	**Gallons in Well**	0.92
MP Elevation	NA	**Pump Intake (ft-bmp)**	10.45	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	17:55	**Gallons Purged**		**Replicate/ Code No.**	Dup-03	**Evacuation Method**	Peristaltic
Purge Start:	17:30						
Purge End:	18:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
17:35	0	200	6.77	0.26	7.64	0.302	4.72	5.84	6.2	13	Clear	None
17:40	5	200	6.77	0.53	7.79	0.301	2.19	6.83	6.1	129.6	Clear	None
17:45	5	200	6.77	0.79	7.82	0.304	1.77	6.77	6	129.8	Clear	None
17:50	5	200	6.77	0.79	7.82	0.306	1.6	6.72	6	130.1	Clear	None
17:55	5	200	6.77	0.79	7.82	0.309	1.44	6.7	6	132	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-98			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	4.51	**Total Depth (ft-bmp)**	14.9	**Water Column(ft)**	10.39	**Gallons in Well**	1.69
MP Elevation	NA	**Pump Intake (ft-bmp)**	12.9	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	14:45	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	14:15						
Purge End:	14:50						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:20	0	200	6	0.26	7.17	0.44	3.03	0.19	7.2	95.6	Clear	None
14:25	5	200	6.68	0.53	7.36	0.415	2.08	0.19	7.3	73.3	Clear	None
14:30	5	200	7.1	0.79	7.33	0.414	1.69	0.13	7.3	72.9	Clear	None
14:35	5	200	7.32	1.06	7.41	0.418	1.44	0.06	7.4	64.6	Clear	None
14:40	5	200	7.56	1.32	7.41	0.42	1.22	0.05	7.5	60.3	Clear	None
14:45	5	200	7.65	1.32	7.41	0.42	1.17	0.05	7.4	59.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-99			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	6.25	**Total Depth (ft-bmp)**	16.85	**Water Column(ft)**	10.6	**Gallons in Well**	1.72
MP Elevation	NA	**Pump Intake (ft-bmp)**	14.85	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	13:50	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	13:20						
Purge End:	13:55						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:25	0	200	7.22	0.26	8.03	1.34	12.7	0.11	8.5	237.6	Clear	None
13:30	5	200	7.96	0.53	8.15	1.32	3.88	0.02	8.4	228.5	Clear	None
13:35	5	200	8.74	0.79	8.2	1.31	2.29	0.01	8.3	216.7	Clear	None
13:40	5	200	9.14	1.06	8.23	1.31	2.12	0.01	8.4	202.2	Clear	None
13:45	5	200	9.37	1.32	8.23	1.3	1.9	0.01	8.4	198.6	Clear	None
13:50	5	200	9.44	1.59	8.24	1.3	1.79	0.01	8.4	195.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-103			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	0.72	**Total Depth (ft-bmp)**	10.7	**Water Column(ft)**	9.98	**Gallons in Well**	1.62
MP Elevation	NA	**Pump Intake (ft-bmp)**	8.7	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	10:55	**Gallons Purged**		**Replicate/ Code No.**	MS/MSD	**Evacuation Method**	Peristaltic
Purge Start:	10:30						
Purge End:	11:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:35	0	200	1.44	0.26	7.14	0.422	13.9	1.14	6.4	97.7	Clear	None
10:40	5	200	1.44	0.53	7.14	0.424	6.43	1.27	6.2	99.1	Clear	None
10:45	5	200	1.44	0.79	7.15	0.431	3.03	1.53	6.1	99.8	Clear	None
10:50	5	200	1.44	1.06	7.15	0.43	2.49	1.47	6.1	99.7	Clear	None
10:55	5	200	1.44	1.32	7.16	0.431	2.06	1.45	6.1	99.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-104			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	1.18	**Total Depth (ft-bmp)**	9.45	**Water Column(ft)**	8.27	**Gallons in Well**	1.34
MP Elevation	NA	**Pump Intake (ft-bmp)**	7.45	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	14:55	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	14:30						
Purge End:	15:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:35	0	200	2.26	0.26	7.16	0.415	3.62	1.2	6.6	85.5	Clear	None
14:40	5	200	2.26	0.53	7.22	0.409	2.61	0.72	6.5	74.1	Clear	None
14:45	5	200	2.26	0.79	7.28	0.409	2.07	0.6	6.5	70.1	Clear	None
14:50	5	200	2.26	1.06	7.25	0.408	1.59	0.53	6.4	70.3	Clear	None
14:55	5	200	2.26	1.32	7.29	0.409	1.3	0.42	6.6	67.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-18-105			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	0	**Total Depth (ft-bmp)**	11.7	**Water Column(ft)**	11.7	**Gallons in Well**	1.9
MP Elevation	NA	**Pump Intake (ft-bmp)**	9.7	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	10:15	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	09:40						
Purge End:	10:20						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:45	0	200	1.18	0.26	6.77	0.446	2.77	0.3	6.3	209.5	Clear	None
09:50	5	200	1.18	0.53	6.85	0.443	2.11	0.22	6.2	166.3	Clear	None
09:55	5	200	1.18	0.79	6.93	0.44	1.8	0.11	6.1	138.3	Clear	None
10:00	5	200	1.18	1.06	7.03	0.438	1.55	0.06	6.1	113.8	Clear	None
10:05	5	200	1.18	1.32	7.07	0.438	1.41	0.06	6.1	105.7	Clear	None
10:10	5	200	1.18	1.59	7.08	0.438	1.22	0.05	6.1	103.1	Clear	None
10:15	5	200	1.18	1.85	7.09	0.437	1.09	0.05	6.1	101.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-19-115			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 37°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	56.55	**Total Depth (ft-bmp)**	80.41	**Water Column(ft)**	23.86	**Gallons in Well**	3.88
MP Elevation	NA	**Pump Intake (ft-bmp)**	74	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	11:25	**Gallons Purged**	2.00	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	10:55						
Purge End:	11:25						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:00	0	125	58.48	0.13	7.06	1.94	29.6	1.08	12.2	-4.8	Clear	Faint hydrocarbons
11:05	5	125	59.28	0.26	7.05	1.97	20.9	0.39	12.8	-7.1	Clear	Faint hydrocarbons
11:10	5	125	60.18	0.40	7.04	1.98	12.9	0.24	12.8	-8.5	Clear	Faint hydrocarbons
11:15	5	125	60.6	0.53	7.03	1.99	10.9	0.22	13	-9.4	Clear	Faint hydrocarbons
11:20	5	125	61.01	0.66	7.02	2.01	10.5	0.21	12.8	-10.3	Clear	Faint hydrocarbons
11:25	5	125	61.32	0.79	7.01	2.03	9.59	0.22	12.9	-10.9	Clear	Faint hydrocarbons

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-19-116			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 38°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	57.55	**Total Depth (ft-bmp)**	73.2	**Water Column(ft)**	15.65	**Gallons in Well**	2.54
MP Elevation	NA	**Pump Intake (ft-bmp)**	66	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	12:20	**Gallons Purged**	2.00	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	11:50						
Purge End:	12:20						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:55	0	125	57.53	0.13	7.18	1.21	5.82	0.63	12.3	-3.9	Clear	None
12:00	5	125	57.57	0.26	7.1	1.3	3.34	0.18	12.9	-22.5	Clear	None
12:05	5	125	57.63	0.40	7.02	1.4	1.57	0.23	12.8	-36.9	Clear	None
12:10	5	125	57.65	0.53	7.01	1.41	2.14	0.16	12.8	-41.3	Clear	None
12:15	5	125	57.65	0.66	7.01	1.43	2.1	0.17	13.1	-46.7	Clear	None
12:20	5	125	57.65	0.79	7	1.45	1.68	0.17	13.1	-48.7	Clear	None

Not Recorded

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-118D			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cool, cloudy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	66.33	**Total Depth (ft-bmp)**	193	**Water Column(ft)**	126.67	**Gallons in Well**	20.58
MP Elevation	NA	**Pump Intake (ft-bmp)**	185	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	11:30	**Gallons Purged**		**Replicate/ Code No.**	MS/MSD	**Evacuation Method**	Bladder
Purge Start:	10:40						
Purge End:	11:20						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:50	0	50	66.3	0.00	7.07	2.26	11.1	1.35	7.2	-7.3	Clear	None
10:55	5	50	66.3	0.00	7.15	1.8	6.35	1.37	7.3	-8.6	Clear	None
11:00	5	50	66.3	0.00	7.15	1.74	4.01	1.51	7.3	-5.3	Clear	None
11:05	5	50	66.3	0.00	7.16	1.74	6.78	1.91	6.6	0.5	Clear	None
11:10	5	50	66.3	0.00	7.16	1.73	6.23	1.84	6.4	0.7	Clear	None
11:15	5	50	66.3	0.00	7.16	1.74	6.2	1.9	6.5	2.8	Clear	None

Constituent Sampled	Container	Number	Preservative
LL 1,4-Dioxane	250 mL Glass	1	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-118S			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cool, cloudy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	66.3	**Total Depth (ft-bmp)**	163	**Water Column(ft)**	96.7	**Gallons in Well**	15.71
MP Elevation	NA	**Pump Intake (ft-bmp)**	155	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:05	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:20						
Purge End:	10:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:25	0	50	66.3	0.00	6.74	3.29	11.7	4.7	6.8	71.1	Clear	None
09:30	5	50	66.3	0.00	6.77	3.63	4.1	2.47	6.4	55.7	Clear	None
09:35	5	50	66.3	0.00	6.79	3.68	4.28	1.5	6.1	46.3	Clear	None
09:40	5	50	66.3	0.00	6.8	3.7	3.1	1.31	6	43	Clear	None
09:45	5	50	66.3	0.00	6.81	3.7	2.21	1.07	6.1	38.7	Clear	None
09:50	5	50	66.3	0.00	6.82	3.71	0.02	0.77	6	32.2	Clear	None
09:55	5	50	66.3	0.00	6.82	3.71	0.02	0.71	6.2	29.9	Clear	None
10:00	5	50	66.3	0.00	6.82	3.71	0.02	0.7	6.2	26.6	Clear	None

Constituent Sampled	Container	Number	Preservative
LL 1,4-Dioxane	250 mL Glass	1	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-119D			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, cool
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	74.2	**Total Depth (ft-bmp)**	199	**Water Column(ft)**	124.8	**Gallons in Well**	20.28
MP Elevation	NA	**Pump Intake (ft-bmp)**	190	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	15:40	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	14:40						
Purge End:	15:35						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:05	0	50	74.2	0.00	7.19	1.04	0.13	3.03	8.7	-7.8	Clear	None
15:10	5	50	74.2	0.00	7.18	1.04	4.08	2.74	8.6	-15.6	Clear	None
15:15	5	50	74.2	0.00	7.17	1.04	0.02	2.19	8.8	-24.2	Clear	None
15:20	5	50	74.2	0.00	7.17	1.04	0.02	2.06	8.8	-25.2	Clear	None
15:25	5	50	74.2	0.00	7.16	1.05	0.02	1.83	8.9	-26.4	Clear	None
15:30	5	50	74.2	0.00	7.15	1.04	0.02	1.87	9	-27.4	Clear	None

Constituent Sampled	Container	Number	Preservative
LL 1,4 Dioxane	250 mL Glass	1	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-119S			**Date**	3/2/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, cool
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	63.44	**Total Depth (ft-bmp)**	163	**Water Column(ft)**	99.56	**Gallons in Well**	16.18
MP Elevation	NA	**Pump Intake (ft-bmp)**	155	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:05	**Gallons Purged**	1.32	**Replicate/ Code No.**	Dup-04	**Evacuation Method**	Bladder
Purge Start:	13:10						
Purge End:	14:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:25	0	100	63.44	0.00	7.05	1.28	7.02	4.3	11	17.5	Clear	None
13:30	5	100	63.44	0.00	7.07	1.24	11.4	4.71	10.7	5.2	Clear	None
13:35	5	100	63.44	0.00	7.06	1.21	9.5	3	10.7	-2.6	Clear	None
13:40	5	100	63.44	0.00	7.06	1.2	0.46	2.06	10.8	-11.9	Clear	None
13:45	5	100	63.44	0.00	7.07	1.2	0.58	1.68	10.4	-18.6	Clear	None
13:50	5	100	63.44	0.00	7.07	1.2	0.35	1.36	10.3	-21.1	Clear	None
13:55	5	100	63.44	0.00	7.08	1.19	0.2	1.21	10.3	-23.5	Clear	None
14:00	5	100	63.44	0.00	7.09	1.19	0.2	1.19	10.3	-28.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	250 mL Glass	1	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-120			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cool, windy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	63.73	**Total Depth (ft-bmp)**	74	**Water Column(ft)**	10.27	**Gallons in Well**	1.67
MP Elevation	NA	**Pump Intake (ft-bmp)**	70	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:50	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	13:15						
Purge End:	13:45						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:20	0	50	63.75	0.00	6.87	2.21	70.9	0.59	11.5	-39.2	Clear	None
13:25	5	50	63.75	0.00	6.85	2.19	40	0.34	11.3	-37.4	Clear	None
13:30	5	50	63.75	0.00	6.85	2.19	18.2	0.27	11.2	-38	Clear	None
13:35	5	50	63.75	0.00	6.85	2.18	13.3	0.25	11.4	-38.2	Clear	None
13:40	5	50	63.75	0.00	6.85	2.18	12.6	0.24	11.4	-38.8	Clear	None
13:45	5	50	63.75	0.00	6.85	2.18	12.1	0.23	11.4	-39.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-19-121	**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Partly cloudy, 45°

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.46	**Total Depth (ft-bmp)**	73.69	**Water Column(ft)**	11.23	**Gallons in Well**	1.82
MP Elevation	NA	**Pump Intake (ft-bmp)**	68	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time: 13:30 **Purge Start:** 13:00 **Purge End:** 13:30		**Gallons Purged**	2.00	**Replicate/ Code No.**		**Evacuation Method**	Bladder

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:05	0	125	62.56	0.08	7.06	1	20.4	0.96	12.2	23.5	Clear	Strong hydrocarbons
13:10	5	125	62.61	0.18	7.03	0.99	19.4	0.29	12.8	3.5	Clear	Strong hydrocarbons
13:15	5	125	62.61	0.29	7.03	0.98	18.2	0.18	12.8	-15.1	Clear	Strong hydrocarbons
13:20	5	125	62.65	0.40	7.02	0.98	14.7	0.18	12.8	-26	Clear	Strong hydrocarbons
13:25	5	125	62.63	0.50	7.01	0.97	14	0.14	12.7	-31.3	Clear	Strong hydrocarbons
13:30	5	125	62.62	0.61	7.02	0.97	13.4	0.14	12.7	-36	Clear	Strong hydrocarbons

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL
Total P, TKN	250 mL Plastic	1	H2SO4
Nitrate-N	125 mL Plastic	1	None

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-122			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cool, windy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.5	**Total Depth (ft-bmp)**	67	**Water Column(ft)**	4.5	**Gallons in Well**	0.73
MP Elevation	NA	**Pump Intake (ft-bmp)**	64	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	12:15	**Gallons Purged**		**Replicate/ Code No.**	Dup-02	**Evacuation Method**	Bladder
Purge Start:	11:35						
Purge End:	12:10						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:45	0	50	60.02	0.00	6.68	4.12	9.73	0.55	11.9	-11.3	Clear	None
11:50	5	50	60.02	0.00	6.69	4.14	2.82	0.43	11.7	-16.7	Clear	None
11:55	5	50	60.02	0.00	6.71	4.11	0.02	0.32	12	-26.7	Clear	None
12:00	5	50	60.02	0.00	6.71	4.1	0.02	0.33	11.9	-27.7	Clear	None
12:05	5	50	60.02	0.00	6.72	4.08	0.02	0.31	11.6	-30.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant-2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-123			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cold, overcast
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	59.95	**Total Depth (ft-bmp)**	74	**Water Column(ft)**	14.05	**Gallons in Well**	2.28
MP Elevation	NA	**Pump Intake (ft-bmp)**	69	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:50	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	10:15						
Purge End:	10:45						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:20	0	50	60.02	0.00	6.84	2.07	14.4	0.48	10.8	-12.5	Clear	None
10:25	5	50	60.02	0.00	6.85	2.03	2.36	0.35	10.7	-20.5	Clear	None
10:30	5	50	60.02	0.00	6.89	1.97	0.02	0.22	11.3	-28.5	Clear	None
10:35	5	50	60.02	0.00	6.89	1.97	0.02	0.24	11.2	-29.6	Clear	None
10:40	5	50	60.02	0.00	6.9	1.96	0.02	0.21	11.4	-32.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	MW-19-125			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cold, overcast
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	68.29	**Total Depth (ft-bmp)**	109	**Water Column(ft)**	40.71	**Gallons in Well**	6.62
MP Elevation	NA	**Pump Intake (ft-bmp)**	105	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	09:40	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:00						
Purge End:	09:35						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:05	0	50	68.29	0.00	7.32	1.49	17	0.65	7.8	-80.5	Clear	None
09:10	5	50	68.29	0.00	7.71	1.47	12	0.36	7.4	-186	Clear	None
09:15	5	50	68.29	0.00	7.77	1.45	10.8	0.32	7.4	-195.8	Clear	None
09:20	5	50	68.29	0.00	7.8	1.44	9.75	0.3	7.4	-202.9	Clear	None
09:25	5	50	68.29	0.00	7.84	1.43	6.33	0.25	7.5	-204.8	Clear	None
09:30	5	50	68.29	0.00	7.87	1.43	6.99	0.24	7.4	-206.7	Clear	None
09:35	5	50	68.29	0.00	7.87	1.42	6.44	0.23	7.5	-207.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	MW-91-2R			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	58.22	**Total Depth (ft-bmp)**	84.2	**Water Column(ft)**	25.98	**Gallons in Well**	4.22
MP Elevation	NA	**Pump Intake (ft-bmp)**	82.2	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	16:55	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Bladder
Purge Start:	16:25						
Purge End:	17:00						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:30	0	200	58.47	0.26	7.33	1.23	284	4.02	13.3	-157.2	Clear	None
16:35	5	200	58.47	0.53	7.3	1.22	264	3.57	12.9	-155.2	Clear	None
16:40	5	200	58.47	0.79	7.29	1.2	202	3.51	12.8	-153	Clear	None
16:45	5	200	58.47	1.06	7.29	1.16	184	3.45	12.7	-151	Clear	None
16:50	5	200	58.47	1.32	7.29	1.15	162	3.41	12.5	-149.7	Clear	None
16:55	5	200	58.47	1.59	7.29	1.15	153	3.4	12.5	-147	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	P6-SB-07			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	5.49	**Total Depth (ft-bmp)**	23.6	**Water Column(ft)**	18.11	**Gallons in Well**	2.94
MP Elevation	NA	**Pump Intake (ft-bmp)**	21.6	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	13:50	**Gallons Purged**		**Replicate/ Code No.**	Dup-05	**Evacuation Method**	Peristaltic
Purge Start:	13:15						
Purge End:	13:55						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:20	0	200	5.61	0.26	7.7	0.54	5.49	2.8	8.8	94.3	Clear	None
13:25	5	200	5.61	0.53	7.57	0.56	2.02	2.05	8.9	56.7	Clear	None
13:30	5	200	5.61	0.79	7.56	0.57	1.8	1.77	8.8	44.2	Clear	None
13:35	5	200	5.61	1.06	7.52	0.57	1.4	1.62	8.7	39.3	Clear	None
13:40	5	200	5.61	1.32	7.51	0.59	1.29	1.58	8.7	35.9	Clear	None
13:45	5	200	5.61	1.59	7.5	0.61	1.24	1.49	8.7	33.9	Clear	None
13:50	5	200	5.61	1.85	7.4	0.63	1.18	1.44	8.7	32.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	PW-14-03			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Windy, cool, overcast
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	6	**Well Material**	
Static Water Level (ft-bmp)	64.23	**Total Depth (ft-bmp)**	95	**Water Column(ft)**	30.77	**Gallons in Well**	45
MP Elevation	NA	**Pump Intake (ft-bmp)**	90	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time: 13:55		**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start: 13:15							
Purge End: 13:50							

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:25	0	50	64.23	0.00	6.84	2.63	0.02	8.93	12.8	77	Clear	None
13:30	5	50	64.23	0.00	6.81	2.63	0.02	7.04	12	76.4	Clear	None
13:35	5	50	64.23	0.00	6.8	2.63	0.02	6.42	11.8	75.9	Clear	None
13:40	5	50	64.23	0.00	6.79	2.63	0.02	6.03	12	75.5	Clear	None
13:45	5	50	64.23	0.00	6.79	2.64	0.02	5.94	11.9	74.5	Clear	None
13:50	5	50	64.23	0.00	6.78	2.64	0.02	5.9	11.9	74	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	TW-14-02			**Date**	3/4/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cold, windy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	59.3	**Total Depth (ft-bmp)**	72	**Water Column(ft)**	12.7	**Gallons in Well**	2.06
MP Elevation	NA	**Pump Intake (ft-bmp)**	69	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:45	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	14:15						
Purge End:	14:40						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:20	0	50	59.75	0.00	6.54	5.12	3.03	0.59	12.4	-1.7	Clear	None
14:25	5	50	59.75	0.00	6.51	5.21	0.02	0.46	12.3	-3.8	Clear	None
14:30	5	50	59.75	0.00	6.51	5.22	0.02	0.37	12.4	-3.5	Clear	None
14:35	5	50	59.75	0.00	6.51	5.22	0.02	0.34	12.4	-4.2	Clear	None
14:40	5	50	59.75	0.00	6.51	5.21	0.02	0.34	12.6	-4.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	TW-14-06			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Partly cloudy, 46°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	55.02	**Total Depth (ft-bmp)**	86.5	**Water Column(ft)**	31.48	**Gallons in Well**	5.12
MP Elevation	NA	**Pump Intake (ft-bmp)**	83	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:50	**Gallons Purged**	2.50	**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	14:10						
Purge End:	14:50						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:15	0	150	55.75	0.08	7.18	2.56	161	11.08	13.3	2.5	Brown	None
14:20	5	150	55.4	0.18	7.18	2.53	140	10.4	12.6	8.9	Brown	None
14:25	5	150	57.1	0.26	7.16	2.49	134	10.85	12.6	14.4	Brown	None
14:30	5	150	57.73	0.34	7.14	2.53	64.8	11.38	13	19.2	Brown	None
14:35	5	150	58.05	0.42	7.15	2.5	18.4	11.89	13.1	22.2	Brown	None
14:40	5	150	58.32	0.48	7.14	2.48	0.02	11.73	13	26.7	Brown	None
14:45	5	150	58.5	0.55	7.14	2.44	0.02	12.03	13.2	31.3	Brown	None
14:50	5	150	58.5	0.63	7.12	2.43	0.02	12.46	13.1	33.6	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL
Total P, TKN	250 mL Plastic	1	H2SO4
Nitrate-N	125 mL Plastic	1	None

Sampling By Anyssa Schember

Comments: Biosparge system was operating.

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30006870	**Well ID**	TW-15-11			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cold, windy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	63.75	**Total Depth (ft-bmp)**	87	**Water Column(ft)**	23.25	**Gallons in Well**	3.78
MP Elevation	NA	**Pump Intake (ft-bmp)**	84	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	16:00	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	15:25						
Purge End:	15:55						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:35	0	50	62.5	0.00	6.54	3.46	12.6	5.45	11.3	36.4	Clear	None
15:40	5	50	62.5	0.00	6.52	3.47	8.67	5.67	11.1	43.1	Clear	None
15:45	5	50	62.5	0.00	6.52	3.48	4.2	5.9	10.7	47.5	Clear	None
15:50	5	50	62.5	0.00	6.52	3.45	4.33	5.97	10.7	49.6	Clear	None
15:55	5	50	62.5	0.00	6.52	3.46	3.1	5.91	11.1	50.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL

Sampling By Jake Pisarkiewicz

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	TW-15-12			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 39°
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	63.4	**Total Depth (ft-bmp)**	80.02	**Water Column(ft)**	16.62	**Gallons in Well**	2.7
MP Elevation	NA	**Pump Intake (ft-bmp)**	74	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time: 11:20 **Purge Start:** 10:40 **Purge End:** 11:20		**Gallons Purged**	3.00	**Replicate/ Code No.**		**Evacuation Method**	Bladder

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:45	0	200	63.75	0.13	7.7	0.193	11	6.95	12.5	-19.7	Clear	None
10:50	5	200	63.9	0.32	7.02	1.17	17.8	2.39	12.6	6.7	Clear	None
10:55	5	200	63.92	0.53	7.02	1.41	14.1	1.1	12.6	1.1	Clear	None
11:00	5	200	63.95	0.66	7.02	1.44	11.7	0.72	12.6	-4.7	Clear	None
11:05	5	200	63.88	0.79	7.02	1.45	9.58	0.52	12.4	-11.1	Clear	None
11:10	5	200	63.93	0.92	7.01	1.47	9.12	0.42	12.5	-13.4	Clear	None
11:15	5	200	63.95	1.06	7.02	1.48	8.36	0.37	12.7	-16.3	Clear	None
11:20	5	200	63.95	1.32	7.02	1.49	8.1	0.33	12.6	-17.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Vial	3	HCL
Total P, TKN	250 mL Plastic	1	H2SO4
Nitrate-N	125 mL Plastic	1	None

Sampling By Anyssa Schember

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: no

Condition of Well: Good

Well Locked at Departure: no

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

RACER Lansing GW Sampling

Project Number	30042872	**Well ID**	UNK-15			**Date**	3/3/2020
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, 40F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	0.39	**Total Depth (ft-bmp)**	15.65	**Water Column(ft)**	15.26	**Gallons in Well**	2.48
MP Elevation	NA	**Pump Intake (ft-bmp)**	13.26	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	14:20	**Gallons Purged**		**Replicate/ Code No.**	NA	**Evacuation Method**	Peristaltic
Purge Start:	13:55						
Purge End:	14:25						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (S.U.)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:00	0	200	0.39	0.26	8.51	0.4	2.69	1.98	7.9	136.5	Clear	None
14:05	5	200	0.39	0.53	8.55	0.399	2.11	1.89	7.8	130.3	Clear	None
14:10	5	200	0.39	0.79	8.54	0.399	1.81	1.85	7.8	128.9	Clear	None
14:15	5	200	0.39	1.06	8.57	0.399	1.62	1.94	7.9	127.8	Clear	None
14:20	5	200	0.39	1.32	8.57	0.399	1.49	1.95	7.9	126.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Sampling By Austin Westhuis

Comments:

Well Casing Volume Conversion

Well diameter(inc)=gallons per foot 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well: Good

Well Locked at Arrival: no

Well Locked at Departure: no

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
S.U. = Standard Units

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	CH-14-RO			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.65	**Total Depth (ft-bmp)**	14.8	**Water Column(ft)**	7	**Gallons in Well**	1.16
MP Elevation		**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:55	**Volumes Purged**		**Sample ID**	CH-14-RO_060820	**Sampled by**	Jacob Pisarkiewicz
Purge Start	15:25	**Gallons Purged**					
Purge End	15:50			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:35		200	7.9	0.00	7.14	0.8	0.02	0.44	20.2	56.5	Clear	None
15:40	5	200	7.9	0.00	7.11	0.79	0.02	0.43	19.4	61.6	Clear	None
15:45	5	200	7.9	0.00	7.11	0.79	0.02	0.43	19.5	62.7	Clear	None
15:50	5	200	7.9	0.00	7.11	0.79	0.02	0.42	19.4	63.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None
Metals	250 mL Plastic	1	HNO3
hexavalent chromium	125 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-01(2)			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.33	**Total Depth (ft-bmp)**	16	**Water Column(ft)**	9	**Gallons in Well**	1.41
MP Elevation		**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:20	**Volumes Purged**		**Sample ID**	MW-1 (2)_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	10:40	**Gallons Purged**					
Purge End	11:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:50		200	7.89	0.00	6.76	3.56	0.54	0.89	18.8	46.6	Clear	None
10:55	5	200	8.2	0.00	6.77	3.93	0.02	0.88	18.7	20.5	Clear	None
11:00	5	200	8.2	0.00	6.79	4.17	0.02	0.84	19.1	6.7	Clear	None
11:05	5	200	8.2	0.00	6.85	4.3	0.02	0.77	19.1	-14.2	Clear	None
11:10	5	200	8.2	0.00	6.85	4.3	0.02	0.75	19.2	-16.3	Clear	None
11:15	5	200	8.2	0.00	6.86	4.31	0.02	0.78	19.2	-17.4	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-02-02(3)			**Date**	6/11/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.62	**Total Depth (ft-bmp)**	83.6	**Water Column(ft)**	26	**Gallons in Well**	4.22
MP Elevation		**Pump Intake (ft-bmp)**	82.1	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:25	**Volumes Purged**		**Sample ID**	MW-02-02 (3)_061120	**Sampled by**	Austin Westhuis
Purge Start	09:00	**Gallons Purged**					
Purge End	09:30			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:05		200	57.62	0.26	6.35	4.86	3.8	0.02	14.6	37.9	Clear	None
09:10	5	200	57.62	0.53	6.35	4.87	2.44	0.02	14.6	36.7	Clear	None
09:15	5	200	57.62	0.79	6.35	4.86	2.22	0.01	14.6	35.5	Clear	None
09:20	5	200	57.62	1.06	6.36	4.87	1.91	0.01	14.4	37.4	Clear	None
09:25	5	200	57.62	1.32	6.36	4.88	1.74	0.01	14.4	37.6	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-02-03(6)			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Overcast, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	28.01	**Total Depth (ft-bmp)**	44.8	**Water Column(ft)**	17	**Gallons in Well**	2.73
MP Elevation		**Pump Intake (ft-bmp)**	40	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:35	**Volumes Purged**		**Sample ID**	MW-02-03(6)	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**	0.00				
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:25		250	32.28	0.00	7.18	0.36	116	11.63	16.9	-21.4	Cloudy	None
11:30	5	250	32.28	0.00	7.21	0.273	115	9.09	15.9	-76.7	Cloudy	None
11:35	5	250	34.63	0.00	7.35	0.44	98.3	8.66	14.6	-72	Cloudy	None
11:40	5	250	34.96	0.00	7.48	0.14	110	8.16	15.1	-59.1	Cloudy	None
11:45	5	250	34.96	0.00	7.53	0.16	141	8.04	14.4	-56	Cloudy	None
11:50	5	250	35.75	0.00	7.5	-32	706	8.57	16.3	-44.2	Cloudy	None
11:55	5	250	35.75	0.00	7.71	0.127	851	8.41	17.8	-31.1	Cloudy	None
12:00	5	250	36.9	0.00	7.48	6.32	656	9.87	15.3	-91.7	Cloudy	None
12:05	5	250	37.81	0.00	7.47	5.76	667	9.4	15	-100.9	Cloudy	None
12:10	5	250	37.97	0.00	7.49	7.96	202	9.24	15	-98.8	Cloudy	None
12:15	5	250	38.45	0.00	7.45	7.67	753	9.16	15	-100.1	Cloudy	None
12:20	5	250	39.27	0.00	7.4	7.69	496	9.11	15.1	-98.6	Cloudy	None
12:25	5	250	39.8	0.00	7.4	7.24	421	9.41	15.2	-100	Cloudy	None
12:30	5	250	40.12	0.00	7.5	7.34	384	9.65	15.1	-99.3	Cloudy	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	1	None
1,4-Dioxane	50 mL Glass	3	HCL

Comments: High turbidity and unstable readings

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-02-04(3)			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	55.91	**Total Depth (ft-bmp)**	84	**Water Column(ft)**	28	**Gallons in Well**	4.56
MP Elevation		**Pump Intake (ft-bmp)**	83.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:35	**Volumes Purged**		**Sample ID**	MW-02-04 (3)_060820	**Sampled by**	Austin Westhuis
Purge Start	10:05	**Gallons Purged**					
Purge End	10:40			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:10		200	55.91	0.26	6.68	5.57	24.7	0.02	14.5	-30.3	Clear	None
10:15	5	200	55.91	0.53	6.73	5.48	15.6	0.01	14.5	-35.8	Clear	None
10:20	5	200	55.91	0.79	6.74	5.43	8.68	0.01	14.5	-35.9	Clear	None
10:25	5	200	55.91	1.06	6.74	5.43	3.38	0.01	14.4	-35.6	Clear	None
10:30	5	200	55.91	1.32	6.74	5.43	2.96	0.01	14.3	-36.2	Clear	None
10:35	5	200	55.91	1.59	6.75	5.41	2.7	0.01	14.3	-36	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4-Dioxane	40 mL Glass	3	HCL
Metals	125 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-03-05			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Overcast, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	23.23	**Total Depth (ft-bmp)**	48.51	**Water Column(ft)**	25	**Gallons in Well**	4.11
MP Elevation		**Pump Intake (ft-bmp)**	35	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:25	**Volumes Purged**		**Sample ID**	MW-03-05	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:35		250	23.23	0.00	7.68	2.6	53.2	9.15	14.3	-2.9	Clear	None
09:40	5	250	25.94	0.00	7.69	2.6	52.4	9.13	13.2	-67.9	Clear	None
09:45	5	250	26.88	0.00	7.7	2.6	57.7	8.23	13.2	-80.9	Clear	None
09:50	5	250	29.55	0.00	7.7	2.6	48.2	8.01	13	-89.4	Clear	None
09:55	5	250	31.3	0.00	7.71	7.75	38.4	8.08	13.3	-93.5	Clear	None
10:00	5	250	31.95	0.00	7.72	2.6	25.1	7.78	13.1	-97.1	Clear	None
10:05	5	250	32.4	0.00	7.72	2.6	45.1	7.07	13.3	-98.8	Clear	None
10:10	5	250	33.12	0.00	7.72	2.6	28.4	6.83	13.2	-100	Clear	None
10:15	5	250	34.05	0.00	7.73	2.6	22.8	6.79	13.1	-100.1	Clear	None
10:25	10	250	34.05	0.00	7.72	2.6	20.1	6.32	13.2	-104.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	40 mL Glass	3	HCL
1,4-Dioxane	40 mL Glass		HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	20G200

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-03-06			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	36.05	**Total Depth (ft-bmp)**	41	**Water Column(ft)**	5	**Gallons in Well**	0.8
MP Elevation		**Pump Intake (ft-bmp)**	39	**Purge Method**	No-Purge	**Sample Method**	Volumetric
Sample Time	15:10	**Volumes Purged**		**Sample ID**	MW-03-06	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:35		250	36.25	0.00	6.82	10.33	8.26	0.84	15.2	-35.4	Clear	None
14:40	5	250	36.25	0.00	6.82	10.32	9.95	0.6	15	-37.8	Clear	None
14:45	5	250	36.25	0.00	6.83	10.32	12.4	0.49	15.1	-44.2	Clear	None
14:50	5	250	36.25	0.00	6.83	10.3	11	0.46	14.7	-45.1	Clear	None
14:55	5	250	36.25	0.00	6.84	10.29	0.5	0.36	14.5	-49	Clear	None
15:00	5	250	36.25	0.00	6.84	10.3	0.5	0.37	14.7	-51.3	Clear	None
15:05	5	250	36.25	0.00	6.84	10.29	0.82	0.33	14.5	-53.5	Clear	None
15:10	5	250	36.25	0.00	6.85	10.29	0.8	0.34	14.7	-54.6	Clear	None
15:15	5	250	36.25	0.00	6.84	10.29	0.72	0.33	14.7	-55.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	50 mL Glass	3	HCL
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-03-07			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	25.84	**Total Depth (ft-bmp)**	41	**Water Column(ft)**	15	**Gallons in Well**	2.46
MP Elevation		**Pump Intake (ft-bmp)**	39	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:05	**Volumes Purged**		**Sample ID**	MW-03-07_060820	**Sampled by**	Jacob Pisarkiewicz
Purge Start	09:30	**Gallons Purged**					
Purge End	10:00			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:35		200	26.05	0.00	7.09	1.37	4.56	0.89	16	-76.8	Clear	None
09:40	5	200	26.4	0.00	7.12	1.37	5.43	0.81	16.1	-87.2	Clear	None
09:45	5	200	26.4	0.00	7.14	1.37	3.95	0.69	16	-93.3	Clear	None
09:50	5	200	26.4	0.00	7.19	1.36	1.91	0.62	15.9	-98.2	Clear	None
09:55	5	200	26.4	0.00	7.22	1.34	0.02	0.58	16	-100.2	Clear	None
10:00	5	200	26.4	0.00	7.22	1.34	0.02	0.58	16.1	-100.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-03-08			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 93F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.15	**Total Depth (ft-bmp)**	90.01	**Water Column(ft)**	24	**Gallons in Well**	3.88
MP Elevation		**Pump Intake (ft-bmp)**	84.41	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:35	**Volumes Purged**		**Sample ID**	MW-03-08_060920	**Sampled by**	Austin Westhuis
Purge Start	22:10	**Gallons Purged**					
Purge End	10:40			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:15		200	32.96	0.26	6.99	2.03	12.6	0.02	13.5	-74.6	Clear	None
10:20	5	200	32.96	0.53	7.01	2.01	4.58	0.02	13.5	-77.3	Clear	None
10:25	5	200	32.96	0.79	7.01	2.05	2.55	0.02	13.5	-82.1	Clear	None
10:30	5	200	32.96	1.06	7.01	2.05	2.14	0.02	13.4	-82.6	Clear	None
10:35	5	200	32.96	1.32	7.02	2.05	1.78	0.02	13.4	-84.7	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	no
Condition of Well:	Good	Well Locked at Departure:	no
Well Completion:	Flush mount	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-04-01(6)			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.58	**Total Depth (ft-bmp)**	89.31	**Water Column(ft)**	24	**Gallons in Well**	3.86
MP Elevation		**Pump Intake (ft-bmp)**	80	**Purge Method**	Volumetric	**Sample Method**	Grab
Sample Time	13:30	**Volumes Purged**		**Sample ID**	MW-04-01(6)	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:35		250	65.37	0.00	7.01	0.86	16.8	1.66	17.1	25.7	Clear	None
12:40	5	250	65.4	0.00	7.02	0.83	22.9	9.6	17.2	-17.5	Clear	None
12:50	10	250	65.4	0.00	7.02	0.83	16.7	0.82	16.5	-21.4	Clear	None
12:55	5	250	65.4	0.00	7.03	0.85	41.2	0.74	15.8	-28.5	Clear	None
13:00	5	250	65.4	0.00	7.03	0.89	11.7	0.58	15.5	-35.5	Clear	None
13:05	5	250	65.4	0.00	7.03	0.91	4.49	0.47	15.8	-38.2	Clear	None
13:10	5	250	65.4	0.00	7.03	0.92	0.04	0.39	15.7	-43.3	Clear	None
13:15	5	250	65.4	0.00	7.04	0.92	0.02	0.37	15.5	-45.9	Clear	None
13:21	6	250	65.4	0.00	7.04	0.92	0.02	0.35	15.5	-49.6	Clear	None
13:25	4	250	65.4	0.00	7.04	0.92	0.02	0.35	15.5	-50.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1-4 Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-04-04R			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	71.2	**Total Depth (ft-bmp)**	113	**Water Column(ft)**	42	**Gallons in Well**	27.17
MP Elevation		**Pump Intake (ft-bmp)**	109	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	12:20	**Volumes Purged**		**Sample ID**	MW-04-04R_060320	**Sampled by**	Jacob Pisarkiewicz
Purge Start	11:30	**Gallons Purged**					
Purge End	12:15			**Replicate/ Code No.**	DUP-11		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:55		200	71.2	0.00	6.97	1.63	3.79	0.78	20	-64.9	Clear	None
12:00	5	200	71.2	0.00	6.96	1.65	1.23	2.53	20.1	-69.3	Clear	None
12:05	5	200	71.2	0.00	6.95	1.65	4.58	2.73	19.7	-61.5	Clear	None
12:10	5	200	71.2	0.00	6.95	1.64	4.88	2.69	19.9	-64.9	Clear	None
12:15	5	200	71.2	0.00	6.97	1.64	3.21	2.65	20.1	-65.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4 dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-04-05(6)			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.2	**Total Depth (ft-bmp)**	29.6	**Water Column(ft)**	20	**Gallons in Well**	3.31
MP Elevation		**Pump Intake (ft-bmp)**	26	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:40	**Volumes Purged**		**Sample ID**	MW-04-05 (6)_060320	**Sampled by**	Jacob Pisarkiewicz
Purge Start	14:00	**Gallons Purged**					
Purge End	14:35			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:15		200	10.2	0.00	7.24	4.19	0.81	0.43	15	-73.2	Clear	None
14:20	5	200	10.8	0.00	7.24	4.21	1.03	0.39	15.5	-78.1	Clear	None
14:25	5	200	10.8	0.00	7.25	4.28	0.98	0.43	16.2	-83.8	Clear	None
14:30	5	200	10.8	0.00	7.25	4.26	0.78	0.4	16.3	-84.4	Clear	None
14:35	5	200	10.8	0.00	7.25	4.25	0.8	0.43	16.4	-85.6	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-04-06R			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC,Steel
Static Water Level (ft-bmp)	59.85	**Total Depth (ft-bmp)**	79.8	**Water Column(ft)**	20	**Gallons in Well**	12.97
MP Elevation		**Pump Intake (ft-bmp)**	76	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	11:00	**Volumes Purged**		**Sample ID**	MW-04-06R_060320	**Sampled by**	Jacob Pisarkiewicz
Purge Start	21:50	**Gallons Purged**					
Purge End	10:55			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:10		200	60.5	0.00	6.96	5.17	23.4	0.36	16.6	115.2	Clear	None
10:15	5	200	60.5	0.00	7.62	5.17	20.2	0.15	16.6	-29.2	Clear	None
10:20	5	200	60.5	0.00	7.66	5.19	20.3	0.12	16.7	-93.4	Clear	None
10:25	5	200	60.5	0.00	7.63	5.2	17.4	0.11	17	-167.3	Clear	None
10:30	5	200	60.5	0.00	7.59	5.24	16.5	0.11	16.3	-231.5	Clear	None
10:35	5	200	60.5	0.00	7.58	5.25	15.5	0.09	16.4	-242.9	Clear	None
10:40	5	200	60.5	0.00	7.6	5.34	11.5	0.11	16.3	-265.3	Clear	None
10:45	5	200	60.5	0.00	7.59	5.34	10.9	0.1	16.5	-270.6	Clear	None
10:50	5	200	60.5	0.00	7.54	5.39	9.54	0.11	16.2	266.5	Clear	None
10:55	5	200	60.5	0.00	7.51	5.4	9.12	0.12	16.1	-264.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4 dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-05(3)			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.05	**Total Depth (ft-bmp)**	14.7	**Water Column(ft)**	15	**Gallons in Well**	9.52
MP Elevation		**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:15	**Volumes Purged**		**Sample ID**	MW-05 (3)	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:10		250	0.6	0.00	10.22	0.17	10.8	1.16	20.8	43.5	Clear	None
13:15	5	250	1.1	0.00	10.32	0.18	6.99	1.15	20.6	6.6	Clear	None
13:20	5	250	1.1	0.00	10.69	0.23	14.2	1.6	17.7	-27	Clear	None
13:25	5	250	1.21	0.00	10.54	0.2	7.47	1.38	20.2	-38.4	Clear	None
13:30	5	250	1.46	0.00	10.57	0.2	6.53	1.29	20.2	-40.5	Clear	None
13:35	5	250	2.2	0.00	10.37	0.19	4.47	1.07	20.8	-46.9	Clear	None
13:40	5	250	2.41	0.00	10.22	0.18	4.65	0.97	20.5	-49.6	Clear	None
13:45	5	250	2.82	0.00	10.12	0.17	6.55	0.82	21	-54.3	Clear	None
13:50	5	250	3.38	0.00	10.16	0.18	9.38	1.15	21.3	-59.1	Clear	None
13:55	5	250	3.42	0.00	10.16	0.18	10.6	1.14	21.4	-59.4	Clear	None
14:00	5	250	3.86	0.00	10.15	0.18	9.65	1.25	21.2	-60.1	Clear	None
14:05	5	250	3.86	0.00	10.15	0.18	11.2	1.35	21.2	-60.3	Clear	None
14:10	5	250	4.12	0.00	10.21	0.18	12.2	1.36	21.5	-60.8	Clear	None
14:15	5	250	4.24	0.00	10.22	0.18	12	1.35	21.5	-60.8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	50 mL Glass	3	HCL

Comments: Pumped water out of vault. Water in PVC went to very top. Did best not to get residual vault water in tube

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-12-01			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	67.67	**Total Depth (ft-bmp)**	111	**Water Column(ft)**	43	**Gallons in Well**	28.16
MP Elevation		**Pump Intake (ft-bmp)**	108.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:05	**Volumes Purged**	0.04	**Sample ID**	MW-12-01_060520	**Sampled by**	Billy J Cobern
Purge Start	08:25	**Gallons Purged**	1.06				
Purge End	09:05			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:25		100	67.67	0.00							Clear	No
08:30	5	100	67.74	0.13	7.13	1.9	26.7	1.48	15.6	8.9	Clear	No
08:35	5	100	67.77	0.26	7.15	1.9	20.3	0.84	15.2	-14.4	Clear	No
08:40	5	100	67.77	0.40	7.16	1.9	16.8	0.74	15.2	-19.3	Clear	No
08:45	5	100	67.77	0.53	7.16	1.9	15.4	0.7	15.2	-23.6	Clear	No
08:50	5	100	67.77	0.66	7.16	1.9	11.3	0.71	15.3	-29.5	Clear	No
08:55	5	100	67.77	0.79	7.16	1.9	9.92	0.71	15.4	-31	Clear	No
09:00	5	100	67.77	0.92	7.16	1.9	9.67	0.71	15.5	-31.5	Clear	No
09:05	5	100	67.77	1.06	7.16	1.9	9.57	0.69	15.6	-32.4	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-02			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	58.31	**Total Depth (ft-bmp)**	106	**Water Column(ft)**	48	**Gallons in Well**	31
MP Elevation		**Pump Intake (ft-bmp)**	103.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:50	**Volumes Purged**	0.04	**Sample ID**	MW-12-02_060420	**Sampled by**	Billy J Cobern
Purge Start	14:00	**Gallons Purged**	1.32				
Purge End	14:50			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:00		100	58.31	0.00							Clear	No
14:05	5	100	58.37	0.13	6.99	1.08	188	2.21	26.3	-38.6	Clear	No
14:10	5	100	58.37	0.26	6.94	1.16	161	1.45	28.2	-65.3	Clear	No
14:15	5	100	58.37	0.40	6.94	1.2	147	1.37	29.5	-71.3	Clear	No
14:20	5	100	58.37	0.53	6.94	1.2	123	1.35	30.3	-75.3	Clear	No
14:25	5	100	58.37	0.66	6.93	1.2	104	1.33	30.5	-78.1	Clear	No
14:30	5	100	58.37	0.79	6.93	1.24	81.1	1.63	26.5	-78.3	Clear	No
14:35	5	100	58.37	0.92	6.94	1.23	94	1.66	24.4	-73.7	Clear	No
14:40	5	100	58.37	1.06	6.95	1.21	92.7	1.46	24.1	-69	Clear	No
14:45	5	100	58.37	1.19	6.95	1.21	91.2	1.42	24.2	-68.7	Clear	No
14:50	5	100	58.37	1.32	6.95	1.21	93.4	1.42	14.2	-68.4	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments: All parameters stable, but turbidity was above 10 NTU

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-05R			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	66.81	**Total Depth (ft-bmp)**	117.01	**Water Column(ft)**	50	**Gallons in Well**	32.63
MP Elevation		**Pump Intake (ft-bmp)**	114.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:20	**Volumes Purged**	0.04	**Sample ID**	MW-12-05R	**Sampled by**	Billy J Cobern
Purge Start	09:30	**Gallons Purged**	1.32				
Purge End	10:20			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:30		100	66.81	0.00							Clear	No
09:35	5	100	66.81	0.13	8.19	1.52	123	7.44	19.6	-11.4	Clear	No
09:40	5	100	66.81	0.26	7.62	1.55	53.4	7.09	19.7	-83.1	Clear	No
09:45	5	100	66.81	0.40	7.23	1.64	50.2	6.97	19.3	-108.1	Clear	No
09:50	5	100	66.81	0.53	7.19	1.64	20.3	6.43	19.9	-143.3	Clear	No
09:55	5	100	66.81	0.66	7.18	1.64	17.9	6.18	19.7	-164.4	Clear	No
10:00	5	100	66.81	0.79	7.16	1.63	15.9	5.84	20	-172.2	Clear	No
10:05	5	100	66.81	0.92	7.15	1.65	14.5	5.67	20.3	-174.9	Clear	No
10:10	5	100	66.81	1.06	7.16	1.65	13.2	5.64	20	-176.4	Clear	No
10:15	5	100	66.81	1.19	7.18	1.66	13.1	5.76	19.8	-177	Clear	No
10:20	5	100	66.81	1.32	7.19	1.66	13.4	5.68	19.7	-177.8	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments: All parameters stablized, but turbidity was above 10 NTU

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-06			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	65.52	**Total Depth (ft-bmp)**	104.5	**Water Column(ft)**	39	**Gallons in Well**	25.34
MP Elevation		**Pump Intake (ft-bmp)**	102	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	17:18	**Volumes Purged**	0.05	**Sample ID**	MW-12-06_060420	**Sampled by**	Billy J Cobern
Purge Start	16:45	**Gallons Purged**	1.32				
Purge End	17:35			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:45		100	65.52	0.00							Clear	No
16:50	5	100	65.58	0.13	7.52	0.75	57.3	6.8	25.2	-100.3	Clear	No
16:55	5	100	65.58	0.26	7.4	0.81	48.6	7.27	23.6	-90.2	Clear	No
17:00	5	100	65.58	0.40	7.33	0.88	37.1	5.8	26.2	-128.8	Clear	No
17:05	5	100	65.58	0.53	7.33	0.91	25.6	5.73	26	-139.8	Clear	No
17:10	5	100	65.58	0.66	7.33	0.91	17.2	5.68	25.6	-144.3	Clear	No
17:15	5	100	65.58	0.79	7.34	0.91	12.6	5.46	25.5	-149.3	Clear	No
17:20	5	100	65.58	0.92	7.34	0.91	10.2	5.45	25.3	-151.1	Clear	No
17:25	5	100	65.58	1.06	7.34	0.92	9.88	5.52	24.9	-152.3	Clear	No
17:30	5	100	65.58	1.19	7.34	0.92	9.77	5.56	24.7	-152.8	Clear	No
17:35	5	100	65.58	1.32	7.34	0.92	9.68	5.51	24.8	-152.7	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-09			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.6	**Total Depth (ft-bmp)**	21.6	**Water Column(ft)**	8	**Gallons in Well**	1.3
MP Elevation		**Pump Intake (ft-bmp)**	19	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:00	**Volumes Purged**		**Sample ID**	MW-12-09_060820	**Sampled by**	Jacob Pisarkiewicz
Purge Start	00:00	**Gallons Purged**					
Purge End	12:55			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:05		200	13.61	0.00	6.86	2.65	105	0.33	16.8	-26.6	Clear	None
12:10	5	200	13.61	0.00	6.84	2.44	107	0.25	16.8	-33.6	Clear	None
12:15	5	200	13.61	0.00	6.89	2.35	88.2	0.2	17	-41.6	Clear	None
12:20	5	200	13.61	0.00	6.9	2.32	63.1	0.2	17	-42.8	Clear	None
12:25	5	200	13.61	0.00	6.9	2.3	45.5	0.17	17	-44.6	Clear	None
12:30	5	200	13.61	0.00	6.9	2.29	39.9	0.16	17	-44.6	Clear	None
12:35	5	200	13.61	0.00	6.91	2.28	22.7	0.21	17.4	-45.6	Clear	None
12:40	5	200	13.61	0.00	6.91	2.28	15.2	0.2	17	-44.5	Clear	None
12:45	5	200	13.61	0.00	6.91	2.27	10.2	0.21	17.5	-45.5	Clear	None
12:50	5	200	13.61	0.00	6.91	2.28	9.55	20	17.5	-45.9	Clear	None
12:55	5	200	13.61	0.00	6.92	2.28	8.89	0.21	17.4	-46	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL
1,4-Dioxane	40 mL Glass	0	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-12-11			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.28	**Total Depth (ft-bmp)**	16.8	**Water Column(ft)**	14	**Gallons in Well**	2.2
MP Elevation		**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	12:55	**Volumes Purged**		**Sample ID**	MW-12-11_060420	**Sampled by**	Jacob Pisarkiewicz
Purge Start	12:10	**Gallons Purged**					
Purge End	12:45			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:20		200	4.35	0.00	6.76	5.83	17.6	0.71	13	-77.6	Clear	None
12:25	5	200	4.6	0.00	6.54	5.6	4.33	0.55	12.9	-79.2	Clear	None
12:30	5	200	4.6	0.00	6.58	5.55	2.33	0.5	12.8	-78.9	Clear	None
12:35	5	200	4.6	0.00	6.78	5.43	2.22	0.52	12.8	-76.8	Clear	None
12:40	5	200	4.6	0.00	6.78	5.39	1.93	0.56	12.6	-75.6	Clear	None
12:45	5	200	4.6	0.00	6.77	5.33	0.02	0.51	12.6	-72.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-12			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.45	**Total Depth (ft-bmp)**	17.2	**Water Column(ft)**	12	**Gallons in Well**	1.91
MP Elevation		**Pump Intake (ft-bmp)**	15	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	15:35	**Volumes Purged**		**Sample ID**	MW-12-12_060320	**Sampled by**	Jacob Pisarkiewicz
Purge Start	15:00	**Gallons Purged**					
Purge End	15:30			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:04		200	6.5	0.00	7.71	0.5	2.82	0.44	17.6	-44.4	Clear	None
15:10	6	200	7.11	0.00	7.65	0.49	11.4	0.35	18.4	-41.2	Clear	None
15:15	5	200	7.11	0.00	7.64	0.51	13.1	0.39	18.5	-37.5	Clear	None
15:20	5	200	7.11	0.00	7.59	0.53	11.3	0.37	18.2	-34.8	Clear	None
15:25	5	200	7.11	0.00	7.6	0.56	10.9	0.35	18	-32.8	Clear	None
15:30	5	200	7.11	0.00	7.59	0.59	10.1	0.34	17.9	-31.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-13			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.9	**Total Depth (ft-bmp)**	25.5	**Water Column(ft)**	16	**Gallons in Well**	2.53
MP Elevation		**Pump Intake (ft-bmp)**	23	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	09:25	**Volumes Purged**		**Sample ID**	MW-12-13_060420	**Sampled by**	Jacob Pisarkiewicz
Purge Start	20:45	**Gallons Purged**					
Purge End	09:20			**Replicate/ Code No.**	Dup-10		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:50		200	10.75	0.00	7.2	1.09	3.53	0.69	13.7	147.6	Clear	None
08:55	5	200	11.1	0.00	7.23	1.05	2.59	0.39	13.5	106.5	Clear	None
09:00	5	200	11.1	0.00	7.24	1.02	2.13	0.34	13.7	49.4	Clear	None
09:05	5	200	11.1	0.00	7.25	1	3.12	0.28	13.9	6.8	Clear	None
09:10	5	200	11.1	0.00	7.27	0.99	0.02	0.26	13.4	-18.9	Clear	None
09:15	5	200	11.1	0.00	7.26	0.99	0.02	0.25	13.5	-20.1	Clear	None
09:20	5	200	11.1	0.00	7.26	0.99	0.02	0.27	13.6	-22.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
Metals	250 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-18			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	22.8	**Total Depth (ft-bmp)**	35	**Water Column(ft)**	12	**Gallons in Well**	1.98
MP Elevation		**Pump Intake (ft-bmp)**	33	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:35	**Volumes Purged**		**Sample ID**	MW-12-18_060820	**Sampled by**	Jacob Pisarkiewicz
Purge Start	10:55	**Gallons Purged**					
Purge End	11:30			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:00		200	22.8	0.00	7.04	2.23	48.5	0.69	15.3	39.2	Clear	None
11:05	5	200	23.5	0.00	7	2.22	44.6	0.36	14.9	18.3	Clear	None
11:10	5	200	23.8	0.00	7.02	2.23	36.5	0.28	15.2	-1.3	Clear	None
11:15	5	200	23.8	0.00	7.03	2.23	34.5	0.27	15.1	-6.7	Clear	None
11:20	5	200	23.8	0.00	7.06	2.42	20.3	0.25	15.4	-16.6	Clear	None
11:25	5	200	23.8	0.00	7.06	2.24	19.5	0.23	15.4	-17.8	Clear	None
11:30	5	200	23.8	0.00	7.06	2.24	18.8	0.24	15.4	-18.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-20			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.85	**Total Depth (ft-bmp)**	80.5	**Water Column(ft)**	21	**Gallons in Well**	3.36
MP Elevation		**Pump Intake (ft-bmp)**	78	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:15	**Volumes Purged**		**Sample ID**	MW-12-20_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	13:35	**Gallons Purged**					
Purge End	14:10			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:50		200	60.25	0.00	6.82	1.53	17.8	0.43	20.1	-79.8	Clear	None
13:55	5	200	60.25	0.00	6.85	1.54	17	0.42	17.2	-79.2	Clear	None
14:00	5	200	60.25	0.00	6.85	1.53	16.3	0.37	17.6	-79.6	Clear	None
14:05	5	200	60.25	0.00	6.86	1.53	16.5	0.34	17.2	-78.8	Clear	None
14:10	5	200	60.25	0.00	6.86	1.54	16.1	0.33	16.6	-78.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-12-21			**Date**	6/11/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.25	**Total Depth (ft-bmp)**	78.75	**Water Column(ft)**	18	**Gallons in Well**	2.84
MP Elevation		**Pump Intake (ft-bmp)**	76	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:00	**Volumes Purged**		**Sample ID**	MW-12-21_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	08:15	**Gallons Purged**					
Purge End	08:55			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:25		200	62	0.00	6.76	1.42	50.7	0.69	14.2	-52	Clear	None
08:30	5	200	62.6	0.00	6.79	1.42	63.3	0.62	14.2	-56.9	Clear	None
08:35	5	200	62.6	0.00	6.81	1.42	63.3	0.59	14.5	-60.9	Clear	None
08:40	5	200	62.6	0.00	6.83	1.42	64.9	0.56	14.6	-61.6	Clear	None
08:45	5	200	62.6	0.00	6.84	1.42	60.2	0.6	14.5	-61.6	Clear	None
08:50	5	200	62.6	0.00	6.85	1.41	58.9	0.63	14.5	-60.9	Clear	None
08:55	5	200	62.6	0.00	6.85	1.41	57.5	0.62	14.5	-60.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
VOCs	40 mL Glass	0	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-13-22			**Date**	6/11/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	62.2	**Total Depth (ft-bmp)**	98	**Water Column(ft)**	36	**Gallons in Well**	5.82
MP Elevation		**Pump Intake (ft-bmp)**	91	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:45	**Volumes Purged**		**Sample ID**	MW-13-22	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:35		250	62.3	0.00	6.93	1.91	19.2	0.96	14.5	-53	Clear	None
08:40	5	250	62.3	0.00	6.94	1.91	3.81	0.7	14.2	-65.9	Clear	None
08:45	5	250	62.3	0.00	6.95	1.91	4.58	0.66	14.1	-67.9	Clear	None
08:50	5	250	62.3	0.00	6.96	1.9	4.45	0.48	14	-73	Clear	None
08:55	5	250	62.3	0.00	6.96	1.9	4.07	0.39	14	-77	Clear	None
09:00	5	250	62.3	0.00	6.96	1.9	4.7	0.36	14.1	-80.4	Clear	None
09:05	5	250	62.3	0.00	6.96	1.91	4.43	0.29	14.1	-84.4	Clear	None
09:10	5	250	62.3	0.00	6.96	1.9	4.64	0.29	14.2	-84.5	Clear	None
09:15	5	250	62.3	0.00	6.95	1.92	33.6	0.26	14.1	-84.5	Clear	None
09:20	5	250	62.3	0.00	6.95	1.94	56.5	0.26	14.2	-84.3	Clear	None
09:25	5	250	62.3	0.00	6.95	1.94	53.3	0.26	14.1	-84.3	Clear	None
09:30	5	250	62.3	0.00	6.96	1.93	51	0.24	14.2	-84.2	Clear	None
09:35	5	250	62.3	0.00	6.96	1.94	57.9	0.75	14.1	-85	Clear	None
09:40	5	250	62.3	0.00	6.95	1.94	58.7	0.59	14.2	-85.6	Clear	None
09:37	1437	250	62.3	0.00	6.95	1.94	76.6	0.47	14.2	-85.4	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	50 mL Glass	3	HCL
1,4-Dioxane	50 mL Glass	0	HCL

Comments: Unstable well

Well Casing Volume Conversion

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-23			**Date**	6/11/2020
Project Name/Location	RACER Lansing					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	64.01	**Total Depth (ft-bmp)**	79.1	**Water Column(ft)**	15	**Gallons in Well**	2.45
MP Elevation		**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:25	**Volumes Purged**		**Sample ID**	MW-13-23	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:20		250	64.01	0.00	6.59	2.32	1100	1.78	15.2	58.6	Clear	None
10:25	5	250	64.01	0.00	6.61	2.31	1100	0.47	15	55	Clear	None
10:30	5	250	64.52	0.00	6.6	2.3	1100	0.37	15.1	54.2	Clear	None
10:35	5	250	64.52	0.00	6.61	2.3	305	0.33	15.6	51.7	Clear	None
10:40	5	250	64.52	0.00	6.58	2.3	241	0.22	15.3	51.6	Clear	None
10:45	5	250	64.52	0.00	6.58	2.3	131	0.2	15.4	51.9	Clear	None
10:50	5	250	64.52	0.00	6.59	2.29	68	0.19	15.6	52.1	Clear	None
10:55	5	250	64.52	0.00	6.59	2.3	49.7	0.17	15.6	52.2	Clear	None
11:00	5	250	64.52	0.00	6.59	2.29	88.4	0.17	15.5	52.6	Clear	None
11:05	5	250	64.52	0.00	6.6	2.29	76.9	0.16	15.6	52.8	Clear	None
11:10	5	250	64.52	0.00	6.6	2.29	52.8	0.16	15.6	53	Clear	None
11:15	5	250	64.52	0.00	6.6	2.29	46.8	0.16	15.5	53.6	Clear	None
11:20	5	250	64.52	0.00	6.61	2.29	40	0.15	15.6	53.3	Clear	None
11:25	5	250	64.52	0.00	6.61	2.3	35.7	0.8	15.7	54.7	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-24			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	59.27	**Total Depth (ft-bmp)**	78	**Water Column(ft)**	19	**Gallons in Well**	3.04
MP Elevation		**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:55	**Volumes Purged**		**Sample ID**	MW-13-24	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:50		250	59.27	0.00	6.98	1.02	15.7	2.7	18.4	-69.7	Clear	None
12:55	5	250	59.27	0.00	6.98	1	12.1	0.72	17	-74.4	Clear	None
13:00	5	250	59.27	0.00	6.98	0.97	8.03	0.95	16.9	-72.8	Clear	None
13:05	5	250	59.27	0.00	7.05	0.93	8	1.16	16.3	-77.3	Clear	None
13:10	5	250	59.27	0.00	7.07	0.93	6.05	1.18	16.2	-79.1	Clear	None
13:15	5	250	59.27	0.00	7.05	0.94	6.07	1.24	16.3	-79.3	Clear	None
13:20	5	250	59.27	0.00	7.04	0.97	4.56	1.07	16.1	-78.4	Clear	None
13:25	5	250	59.27	0.00	7.03	0.98	4.52	0.96	16	-77.8	Clear	None
13:30	5	250	59.27	0.00	7.02	1	4.59	0.83	16.2	-77.4	Clear	None
13:35	5	250	59.27	0.00	7	1.01	4.58	0.69	15.8	-76.9	Clear	None
13:40	5	250	59.27	0.00	7	1.01	4.58	0.63	15.7	-77	Clear	None
13:45	5	250	59.27	0.00	7	1.03	4.03	0.58	15.6	-74.6	Clear	None
13:50	5	250	59.27	0.00	6.99	1.03	3.99	0.61	15.8	-76.7	Clear	None
13:55	5	250	59.27	0.00	7	1.03	3.97	0.6	15.6	-76.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-25			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	63.49	**Total Depth (ft-bmp)**	76.8	**Water Column(ft)**	13	**Gallons in Well**	2.16
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:50	**Volumes Purged**		**Sample ID**	MW-25	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	#Error						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:40		250	63.6	0.00	6.79	2.56	76.8	3.16	20.5	-77.7	Clear	None
09:45	5	250	63.6	0.00	6.7	2.79	35.6	0.79	19.8	-76.5	Clear	None
09:50	5	250	63.6	0.00	6.73	2.77	26	0.44	20.4	-82	Clear	None
09:55	5	250	63.6	0.00	6.75	2.73	23.2	0.41	19.8	-83.9	Clear	None
10:00	5	250	63.6	0.00	6.79	2.5	14.9	0.78	19.6	-84.8	Clear	None
10:05	5	250	63.6	0.00	6.87	2.27	12	2.99	19.1	-80.1	Clear	None
10:10	5	250	63.6	0.00	6.93	2.2	35.6	4.31	18.8	-76.2	Clear	None
10:15	5	250	63.6	0.00	6.99	2.15	19.2	6.12	18.5	-70	Clear	None
10:20	5	250	63.6	0.00	6.99	2.15	14.6	6	18.5	-70	Clear	None
10:25	5	250	63.6	0.00	7.02	2.13	9.2	6.17	18.4	-70.9	Clear	None
10:30	5	250	63.6	0.00	7.05	2.13	10.3	6.53	18.3	-71.3	Clear	None
10:35	5	250	63.6	0.00	7.06	2.11	9.82	6.19	18.3	-71.6	Clear	None
10:40	5	250	63.6	0.00	7.07	2.12	11.5	6.67	18.3	-71.5	Clear	None
10:45	5	250	63.6	0.00	7.07	2.12	11.9	6.16	18.1	-71.3	Clear	None
10:50	5	250	63.6	0.00	7.08	2.11	11.1	6.06	18.2	-71	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments: Unstable well

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-28			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	63.02	**Total Depth (ft-bmp)**	106	**Water Column(ft)**	43	**Gallons in Well**	27.94
MP Elevation		**Pump Intake (ft-bmp)**	103	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:50	**Volumes Purged**	0.03	**Sample ID**	MW-13-28	**Sampled by**	Billy J Cobern
Purge Start	15:15	**Gallons Purged**	0.92				
Purge End	15:50			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:15		100	63.02	0.00							Clear	No
15:20	5	100	63.09	0.13	10.45	0.242	27.2	7.82	21.9	56.9	Clear	No
15:25	5	100	63.09	0.26	10.44	0.242	17.6	7.49	22.2	56.7	Clear	No
15:30	5	100	63.09	0.40	10.45	0.244	13.9	7.47	22.1	56.5	Clear	No
15:35	5	100	63.09	0.53	10.44	0.245	10.8	711	22.8	56.5	Clear	No
15:40	5	100	63.09	0.66	10.45	0.247	9.49	7.33	22.4	56	Clear	No
15:45	5	100	63.09	0.79	10.45	0.247	9.31	7.4	22.1	56.4	Clear	No
15:50	5	100	63.09	0.92	10.46	0.247	9.17	7.36	22.2	56.4	Clear	No

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-29			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	62.66	**Total Depth (ft-bmp)**	78	**Water Column(ft)**	15	**Gallons in Well**	2.49
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:20	**Volumes Purged**		**Sample ID**	MW-13-29	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:30		250	62.66	0.00	6.62	3	11.5	1.22	13.8	-36.3	Clear	None
11:35	5	250	62.66	0.00	6.63	2.98	4.6	0.53	16.3	-34.8	Clear	None
11:40	5	250	62.66	0.00	6.63	2.98	8.49	0.41	16.4	-36.1	Clear	None
11:45	5	250	62.7	0.00	6.64	3	8.84	0.29	16.5	-38	Clear	None
11:50	5	250	62.7	0.00	6.64	3.01	8.26	0.29	16.1	-38.2	Clear	None
11:55	5	250	62.7	0.00	6.65	3.03	6.23	0.29	16.2	-39.3	Clear	None
12:00	5	250	62.7	0.00	6.65	3.02	10.5	0.27	16.3	-40.3	Clear	None
12:05	5	250	62.7	0.00	6.66	3.02	12.8	0.25	16.1	-41	Clear	None
12:10	5	250	62.7	0.00	6.66	3.03	6.11	0.25	16	-41.6	Clear	None
12:15	5	250	62.7	0.00	6.66	3.03	6.1	0.25	16.1	-41.9	Clear	None
12:20	5	250	62.7	0.00	6.67	3.03	6.1	0.26	16.1	-42.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-32			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	5.86	**Total Depth (ft-bmp)**	12.64	**Water Column(ft)**	7	**Gallons in Well**	1.1
MP Elevation		**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:45	**Volumes Purged**		**Sample ID**	MW-13-32	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:50		250	5.86	0.00	6.85	1.19	74.2	0.48	15.9	-15.6	Clear	None
14:55	5	250	5.86	0.00	6.86	1.13	52.9	0.29	15.3	-4.7	Clear	None
15:00	5	250	6.16	0.00	6.92	1	26.9	0.31	15.6	0.2	Clear	None
15:05	5	250	6.16	0.00	6.91	0.91	7.77	0.3	15.6	5.6	Clear	None
15:10	5	250	6.16	0.00	6.95	0.86	1.59	0.44	15.3	5.6	Clear	None
15:15	5	250	6.16	0.00	6.98	0.79	0.7	0.5	15.6	4.3	Clear	None
15:20	5	250	6.16	0.00	7	0.74	0.58	0.41	15.2	3.1	Clear	None
15:25	5	250	6.16	0.00	6.98	0.66	0.57	0.26	14.5	-0.5	Clear	None
15:30	5	250	6.16	0.00	6.98	0.62	0.02	0.2	14.6	-2	Clear	None
15:35	5	250	6.16	0.00	6.99	0.56	0.02	0.15	15	-2.5	Clear	None
15:40	5	250	6.16	0.00	7	0.55	0.02	0.15	14.9	-2.4	Clear	None
15:45	5	250	6.16	0.00	6.99	0.55	0.02	0.14	14.7	-2.4	Clear	None

Constituent Sampled	Container	Number	Preservative
Metals	250 mL Plastic	1	HNO3
SVOCs	1L Amber	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

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Project Number	30042872	**Well ID**	MW-13-34			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Mostly Cloudy, 83F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.23	**Total Depth (ft-bmp)**	79.76	**Water Column(ft)**	24	**Gallons in Well**	3.82
MP Elevation		**Pump Intake (ft-bmp)**	77.26	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:00	**Volumes Purged**		**Sample ID**	MW-13-34_061020	**Sampled by**	Austin Westhuis
Purge Start	11:25	**Gallons Purged**					
Purge End	12:05			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:30		200	56.23	0.26	7.08	1.5	3.69	0.02	15.6	-87.5	Clear	None
11:35	5	200	56.23	0.53	6.97	1.9	2.04	0.02	15.8	-81.4	Clear	None
11:40	5	200	56.23	0.79	6.91	1.66	1.77	0.01	15.3	-88.7	Clear	None
11:45	5	200	56.23	1.06	6.88	1.72	1.5	0.01	15.3	-89.4	Clear	None
11:50	5	200	56.23	1.32	6.88	1.77	1.42	0.01	15.2	-90.1	Clear	None
11:55	5	200	56.23	1.59	6.88	1.79	1.26	0.01	15.2	-90.9	Clear	None
12:00	5	200	56.23	1.85	6.88	1.81	1.2	0.01	15	-91.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-13-36R			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.53	**Total Depth (ft-bmp)**	12.6	**Water Column(ft)**	7	**Gallons in Well**	1.15
MP Elevation		**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	11:30	**Volumes Purged**		**Sample ID**	MW-13-36R_060420	**Sampled by**	Jacob Pisarkiewicz
Purge Start	11:00	**Gallons Purged**					
Purge End	11:25			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:05		200	5.55	0.00	11.34	0.85	7.56	0.24	15.5	62.5	Clear	None
11:10	5	200	5.55	0.00	11.51	1	2.67	0.15	15.6	55.4	Clear	None
11:15	5	200	5.55	0.00	11.59	1.13	2.06	0.13	15.1	49.5	Clear	None
11:20	5	200	5.55	0.00	11.6	1.16	1.25	0.14	15.4	46.9	Clear	None
11:25	5	200	5.55	0.00	11.62	1.18	0.02	0.13	15.5	46	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
Metals	250 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-37			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	64.18	**Total Depth (ft-bmp)**	114.39	**Water Column(ft)**	50	**Gallons in Well**	32.63
MP Elevation		**Pump Intake (ft-bmp)**	112	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	17:15	**Volumes Purged**	0.05	**Sample ID**	MW-13-37_060320	**Sampled by**	Billy J Cobern
Purge Start	16:15	**Gallons Purged**	1.59				
Purge End	17:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:15		100	64.18	0.00							Clear	No
16:20	5	100	64.2	0.13	8.99	0.75	38.3	6.25	27	125.4	Clear	No
16:25	5	100	64.2	0.26	8.96	0.76	30.2	6.14	27.4	126.1	Clear	No
16:30	5	100	64.2	0.40	8.94	0.76	27.2	6.11	27.5	126	Clear	No
16:35	5	100	64.2	0.53	8.91	0.76	24.1	5.88	27.8	125.5	Clear	No
16:40	5	100	64.2	0.66	8.9	0.76	21.4	5.65	25.2	124	Clear	No
16:45	5	100	64.2	0.79	8.9	0.76	19.4	5.46	25.2	123	Clear	No
16:50	5	100	64.2	0.92	8.9	0.76	17.1	5.46	24.9	123.2	Clear	No
16:55	5	100	64.2	1.06	8.9	0.76	14.6	5.43	25	122.9	Clear	No
17:00	5	100	64.2	1.19	8.9	0.76	11.7	5.44	24.9	122.9	Clear	No
17:05	5	100	64.2	1.32	8.9	0.76	9.92	5.3	25.1	122.8	Clear	No
17:10	5	100	64.2	1.45	8.9	0.75	9.79	5.32	25.1	122.6	Clear	No
17:15	5	100	64.2	1.59	8.89	0.75	9.69	5.28	25.3	122.4	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

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Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-13-38			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	65.05	**Total Depth (ft-bmp)**	132.5	**Water Column(ft)**	67	**Gallons in Well**	43.84
MP Elevation		**Pump Intake (ft-bmp)**	130	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:00	**Volumes Purged**	0.04	**Sample ID**	MW-13-38_060420	**Sampled by**	Billy J Cobern
Purge Start	08:00	**Gallons Purged**	1.59				
Purge End	09:00			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:00		100	65.05	0.00							Clear	No
08:05	5	100	65.22	0.13	9.17	1.73	22.8	1.09	15.2	184.6	Clear	No
08:10	5	100	65.22	0.26	9.21	1.7	27.8	0.5	15	169.9	Clear	No
08:15	5	100	65.22	0.40	9.21	1.7	29.4	0.45	14.9	165.8	Clear	No
08:20	5	100	65.22	0.53	9.21	1.7	26.7	0.46	15.1	164.1	Clear	No
08:25	5	100	65.22	0.66	9.21	1.7	23.4	0.42	15.1	161.3	Clear	No
08:30	5	100	65.22	0.79	9.22	1.7	19.8	0.41	15.1	158.2	Clear	No
08:35	5	100	65.22	0.92	9.23	1.7	17.8	0.43	15	153.9	Clear	No
08:40	5	100	65.22	1.06	9.24	1.7	16.8	0.47	15.1	151.2	Clear	No
08:45	5	100	65.22	1.19	9.24	1.7	16.1	0.47	15.1	150	Clear	No
08:50	5	100	65.22	1.32	9.24	1.7	15.8	0.49	15.1	149.5	Clear	No
08:55	5	100	65.22	1.45	9.24	1.71	15.3	0.49	15	149.2	Clear	No
09:00	5	100	65.22	1.59	9.25	1.7	15.1	0.5	15	148.9	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments: Missing locking cover, all parameters stable, turbidity was above 10 ntu

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: no

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Condition of Well:	Good	Well Locked at Departure:	no
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-41			**Date**	6/11/2020
Project Name/Location	RACER Lansing					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	57.08	**Total Depth (ft-bmp)**	86.65	**Water Column(ft)**	30	**Gallons in Well**	4.8
MP Elevation		**Pump Intake (ft-bmp)**	80	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:40	**Volumes Purged**		**Sample ID**	MW-13-41	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:00		250	57.08	0.00	7.52	4.16	40	4.87	16.4	-71.2	Clear	None
12:05	5	250	57.08	0.00	7.43	4.47	57.2	0.82	15.3	-95.1	Clear	None
12:10	5	250	57.08	0.00	7.44	4.46	50.7	0.39	15.3	-105.6	Clear	None
12:15	5	250	57.08	0.00	7.44	4.47	52	0.3	16.1	-111.2	Clear	None
12:20	5	250	57.08	0.00	7.44	4.46	49.6	0.28	15.2	-111.5	Clear	None
12:25	5	250	57.08	0.00	7.44	4.47	52.8	0.25	15	-116.8	Clear	None
12:30	5	250	57.08	0.00	7.46	4.46	71.4	0.26	15.2	-119.1	Clear	None
12:35	5	250	57.08	0.00	7.46	4.46	72	0.25	15.1	-119.4	Clear	None
12:40	5	250	57.08	0.00	7.46	4.47	72.1	0.24	15.1	-119.6	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-43			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	62.78	**Total Depth (ft-bmp)**	81	**Water Column(ft)**	18	**Gallons in Well**	2.96
MP Elevation		**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:40	**Volumes Purged**		**Sample ID**	MW13-43	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	#Error						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:25		250	62.78	0.00	7.07	2.03	944	1.65	17.4	-92.2	Clear	None
14:30	5	250	62.78	0.00	7.03	2.18	851	0.75	16.6	-89.5	Clear	None
14:35	5	250	62.78	0.00	7.03	2.25	448	0.47	16.6	-88.1	Clear	None
14:40	5	250	62.78	0.00	7.01	2.26		0.42	15.9	-86.7	Clear	None
14:45	5	250	62.78	0.00	7.04	2.29	302	0.36	15.8	-87.3	Clear	None
14:50	5	250	62.78	0.00	7.04	2.3	258	0.39	15.6	-37	Clear	None
14:55	5	250	62.78	0.00	7.04	2.3	245	0.37	15.7	-86.7	Clear	None
15:00	5	250	62.78	0.00	7.06	2.31	212	0.38	15.7	-87.1	Clear	None
15:05	5	250	62.78	0.00	7.06	2.29	180	0.38	15.6	-86.5	Clear	None
15:10	5	250	62.78	0.00	7.08	2.31	173	0.4	15.6	-86.9	Clear	None
15:15	5	250	62.78	0.00	7.06	2.31	157	0.38	15.6	-85.3	Clear	None
15:20	5	250	62.78	0.00	7.06	2.3	116	0.39	15.7	-85	Clear	None
15:25	5	250	62.78	0.00	7.08	2.31	89	0.38	15.5	-84.6	Clear	None
15:30	5	250	62.78	0.00	7.06	2.31	65.8	0.31	15.7	-84.4	Clear	None
15:35	5	250	62.78	0.00	7.07	2.31	62.1	0.33	15.9	-84.4	Clear	None
15:40	5	250	62.78	0.00	7.07	2.31	61	0.28	15.5	-84.5	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	50 mL Glass	3	HCL

Comments: Pump slipped and touched bottom of well. High turbidity as a result

Well Casing Volume Conversion

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-13-44			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	68.02	**Total Depth (ft-bmp)**	122.1	**Water Column(ft)**	54	**Gallons in Well**	35.15
MP Elevation		**Pump Intake (ft-bmp)**	119.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	18:50	**Volumes Purged**	0.03	**Sample ID**	MW-13-44_060420	**Sampled by**	Billy J Cobern
Purge Start	18:10	**Gallons Purged**	1.06				
Purge End	18:50			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
18:10		100	68.02	0.00							Clear	No
18:15	5	100	68.05	0.13	9.13	1.26	24.9	5.07	27	76.3	Clear	No
18:20	5	100	68.05	0.26	7.5	1.42	35.9	6.21	25.2	60.7	Clear	No
18:25	5	100	68.09	0.40	7.29	1.46	34.9	6.01	23.9	15.7	Clear	No
18:30	5	100	68.11	0.53	7.24	1.47	28.8	4.7	22.8	-51.4	Clear	No
18:35	5	100	68.11	0.66	7.24	1.46	29.7	4.6	22.9	-62.2	Clear	No
18:40	5	100	68.11	0.79	7.24	1.47	27.8	4.52	22.9	-66.7	Clear	No
18:45	5	100	68.11	0.92	7.23	1.47	26.1	4.48	22.8	-68.3	Clear	No
18:50	5	100	68.11	1.06	7.23	1.46	25.9	4.48	23	-68.9	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments: All parameters stablized, turbidity was above 10 NTU

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-45			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.32	**Total Depth (ft-bmp)**	77	**Water Column(ft)**	14	**Gallons in Well**	2.22
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	09:45	**Volumes Purged**	1.13	**Sample ID**	MW-13-45_060920	**Sampled by**	D. Stockard
Purge Start	08:55	**Gallons Purged**	2.50				
Purge End	09:45			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:55		200	63.32	0.00	6.97	1.04	485	2.14	16.6	198.8	None	None
09:00	5	200	63.76	0.00	7	1.03	278	0.53	15.7	133	None	None
09:10	10	200	63.76	0.00	7.07	97	83.5	0.37	15.5	96	None	None
09:15	5	200	63.76	0.00	7.18	1.05	23.7	0.24	15.4	50.4	None	None
09:25	10	200	63.76	0.00	7.21	1.05	18	0.23	15.3	30.2	None	None
09:30	5	200	63.81	0.00	7.22	1.06	17.6	0.21	15.3	16.4	None	None
09:35	5	200	63.83	0.00	7.22	1.06	18.6	0.19	15.4	7.8	None	None
09:40	5	200	63.83	0.00	7.25	1.06	18	0.18	15.4	4	None	None
09:45	5	200	63.81	0.00	7.25	1.06	17.9	0.18	15.4	-1	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-46			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Mostly Cloudy, 83F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	55.62	**Total Depth (ft-bmp)**	74.62	**Water Column(ft)**	19	**Gallons in Well**	3.09
MP Elevation		**Pump Intake (ft-bmp)**	72.12	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:20	**Volumes Purged**		**Sample ID**	MW-13-46_061020	**Sampled by**	Austin Westhuis
Purge Start	12:50	**Gallons Purged**					
Purge End	13:25			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:55		200	55.62	0.26	6.58	2.04	113	0.78	15.2	-37	Clear	None
13:00	5	200	55.62	0.53	6.57	2.06	49.1	0.74	15	-43.8	Clear	None
13:05	5	200	55.62	0.79	6.55	2.06	20.2	0.54	14.8	-47.6	Clear	None
13:10	5	200	55.62	1.06	6.56	2.06	9.46	0.51	14.8	-48.1	Clear	None
13:15	5	200	55.62	1.32	6.55	2.05	3.29	0.5	14.8	-48.5	Clear	None
13:20	5	200	55.62	1.59	6.55	2.06	2.92	0.49	14.7	-48.8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-47			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.5	**Total Depth (ft-bmp)**	113.7	**Water Column(ft)**	57	**Gallons in Well**	9.29
MP Elevation		**Pump Intake (ft-bmp)**	111	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:25	**Volumes Purged**	0.10	**Sample ID**	MW-13-47_060420	**Sampled by**	Billy J Cobern
Purge Start	10:50	**Gallons Purged**	0.92				
Purge End	11:25			**Replicate/ Code No.**	N/A		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:50		100	56.5	0.00							Clear	No
10:55	5	100	56.55	0.13	7.19	1.71	31.4	6.35	22.6	-108.4	Clear	No
11:00	5	100	56.55	0.26	7.21	1.71	19.7	6.56	21.7	-120.2	Clear	No
11:05	5	100	56.55	0.40	7.23	1.7	14.9	6.17	21.8	-136.3	Clear	No
11:10	5	100	56.55	0.53	7.2	1.69	11.9	5.41	24.1	-142.2	Clear	No
11:15	5	100	56.55	0.66	7.17	1.7	9.66	5.1	25.5	-142.6	Clear	No
11:20	5	100	56.55	0.79	7.17	1.7	9.56	5.16	25.5	-142.1	Clear	No
11:25	5	100	56.55	0.92	7.17	1.7	9.38	5.11	25.6	-142.5	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-13-48			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Mostly Cloudy, 83F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	54.92	**Total Depth (ft-bmp)**	73.02	**Water Column(ft)**	18	**Gallons in Well**	2.94
MP Elevation		**Pump Intake (ft-bmp)**	70.52	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:00	**Volumes Purged**		**Sample ID**	MW-13-48_061020	**Sampled by**	Austin Westhuis
Purge Start	10:30	**Gallons Purged**					
Purge End	11:05			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:35		200	54.92	0.26	6.52	2.11	4.89	0.08	15	-58.1	Clear	None
10:40	5	200	54.92	0.53	6.6	2.1	2.19	0.01	14.6	-66.4	Clear	None
10:45	5	200	54.92	0.79	6.6	2.1	1.91	0.01	14.6	-67.4	Clear	None
10:50	5	200	54.92	1.06	6.56	2.1	1.7	0.01	14.5	-67.9	Clear	None
10:55	5	200	54.92	1.32	6.58	2.1	1.6	0.01	14.4	-68.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

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Project Number	30042872	**Well ID**	MW-13-49			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Mostly Cloudy, 83F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.44	**Total Depth (ft-bmp)**	81.6	**Water Column(ft)**	25	**Gallons in Well**	4.09
MP Elevation		**Pump Intake (ft-bmp)**	81.25	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:10	**Volumes Purged**		**Sample ID**	MW-13-49_061020	**Sampled by**	Austin Westhuis
Purge Start	09:45	**Gallons Purged**					
Purge End	10:15			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:50		200	56.44	0.26	6.63	1.49	3.81	0.57	15.5	-42.7	Clear	None
09:55	5	200	56.44	0.53	6.65	1.48	2.26	0.47	15.4	-46.5	Clear	None
10:00	5	200	56.44	0.79	6.67	1.48	2.11	0.29	15.3	-48.7	Clear	None
10:05	5	200	56.44	1.06	6.68	1.47	1.94	0.27	15.3	-49.1	Clear	None
10:10	5	200	56.44	1.32	6.68	1.48	1.6	0.27	15.3	-50.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-50			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**		**Well Casing Material**	Stainless Steel
Static Water Level (ft-bmp)	71.75	**Total Depth (ft-bmp)**	113	**Water Column(ft)**	41	**Gallons in Well**	
MP Elevation		**Pump Intake (ft-bmp)**	105	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:35	**Volumes Purged**		**Sample ID**	MW-13-50	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:00		250	71.75	0.00	7.24	0.96	44.8	3.15	24.9	-115.9	Clear	None
12:05	5	250	71.75	0.00	7.13	1.27	41.8	3.67	18.5	-115.6	Clear	None
12:10	5	250	71.75	0.00	7.14	1.29	25.2	1.87	17.9	-123.2	Clear	None
12:15	5	250	71.75	0.00	7.14	1.31		0.95	17.2	-126.2	Clear	None
12:55	40	250	71.75	0.00	7.14	1.31	52.9	1.51	19	-130.9	Clear	None
13:00	5	250	71.75	0.00	7.14	1.32	38.7	1.14	21.3	-128.7	Clear	None
13:05	5	250	71.75	0.00	7.14	1.32	36.3	1.03	22	-129.5	Clear	None
13:10	5	250	71.75	0.00	7.14	1.32	29.7	0.95	22.6	-129.6	Clear	None
13:15	5	250	71.75	0.00	7.14	1.33	41.8	1	22.5	-129.8	Clear	None
13:20	5	250	71.75	0.00	7.14	1.36	26.2	1.08	20.4	-131.3	Clear	None
13:25	5	250	71.75	0.00	7.17	1.32	32	0.75	17.2	-130.9	Clear	None
13:30	5	250	71.75	0.00	7.16	1.31	23.4	0.68	17.4	-131.1	Clear	None
13:35	5	250	71.75	0.00	7.16	1.31	14.5	0.66	17.3	-131.8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

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Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-51			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	68.9	**Total Depth (ft-bmp)**	89.85	**Water Column(ft)**	21	**Gallons in Well**	3.4
MP Elevation		**Pump Intake (ft-bmp)**	87	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:20	**Volumes Purged**	0.43	**Sample ID**	MW-13-51	**Sampled by**	Billy J Cobern
Purge Start	14:25	**Gallons Purged**	1.45				
Purge End	15:20			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:25		100	68.9	0.00							Clear	No
14:30	5	100	69.1	0.13	6.98	1.66	102	2.2	29.3	12.5	Clear	No
14:35	5	100	69.18	0.26	6.94	1.62	98.6	1.68	25.1	4.7	Clear	No
14:40	5	100	69.26	0.40	6.93	1.6	78.2	1.34	24.9	2.1	Clear	No
14:45	5	100	69.26	0.53	6.92	1.59	52.1	0.93	25.6	-1.7	Clear	No
14:50	5	100	69.26	0.66	6.93	1.61	24.8	0.84	24.2	-3.4	Clear	No
14:55	5	100	69.26	0.79	6.93	1.59	23.1	0.74	23.8	-4	Clear	No
15:00	5	100	69.26	0.92	6.92	1.59	19.6	0.67	6.93	-4.3	Clear	No
15:05	5	100	69.26	1.06	6.92	1.57	16.4	0.54	24.4	-6.6	Clear	No
15:10	5	100	69.26	1.19	6.92	1.57	16.6	0.46	25.1	-8.2	Clear	No
15:15	5	100	69.26	1.32	6.92	1.57	16.3	0.47	25	-9.2	Clear	No
15:20	5	100	69.26	1.45	6.92	1.57	16	0.48	25.1	-10.8	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	40 mL Glass	3	HCL

Comments: All parameters stablized, but turbidity was above 10 NTU

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Locked at Arrival: yes
Well Locked at Departure: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Completion: Stick-up

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-52			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Steel
Static Water Level (ft-bmp)	67.15	**Total Depth (ft-bmp)**	82.3	**Water Column(ft)**	15	**Gallons in Well**	2.46
MP Elevation		**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:05	**Volumes Purged**		**Sample ID**	MW-13-52	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:55		250	67.15	0.00	7.06	1.67	41.9	1.53	15.8	-75.7	Clear	None
10:00	5	250	67.15	0.00	7.01	1.66	40.7	1.06	15.4	-77.4	Clear	None
10:05	5	250	67.15	0.00	7.03	1.66	43.1	0.76	15.2	-81.1	Clear	None
10:10	5	250	67.15	0.00	7.03	1.66	47.3	0.79	15	-78	Clear	None
10:15	5	250	67.15	0.00	7.06	1.65	45.3	0.86	14.9	-73.8	Clear	None
10:20	5	250	67.15	0.00	7.08	1.65	46.1	0.98	14.9	-69.5	Clear	None
10:25	5	250	67.15	0.00	7.09	1.65	41.7	1.11	15.1	-65.3	Clear	None
10:30	5	250	67.15	0.00	7.09	1.64	37.5	1.17	15.1	-62.1	Clear	None
10:35	5	250	67.15	0.00	7.09	1.65	37.5	1.22	14.9	-60.1	Clear	None
10:40	5	250	67.15	0.00	7.09	1.64	29.7	1.19	15	-59.7	Clear	None
10:45	5	250	67.15	0.00	7.1	1.65	25	1.22	14.9	-59.7	Clear	None
10:50	5	250	67.15	0.00	7.09	1.64	21.3	1.24	14.9	-60	Clear	None
10:55	5	250	67.15	0.00	7.09	1.63	20.1	1.58	15	-60	Clear	None
11:00	5	250	67.15	0.00	7.09	1.64	20.4	1.29	14.9	-60.9	Clear	None
11:05	5	250	67.15	0.00	7.09	1.65	17.8	1.33	15	-60.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-13-53			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	70.4	**Total Depth (ft-bmp)**	86.1	**Water Column(ft)**	16	**Gallons in Well**	2.55
MP Elevation		**Pump Intake (ft-bmp)**	82	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:05	**Volumes Purged**		**Sample ID**	MW-13-53	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:20		250	70.4	0.00	6.91	1.76	35.3	3.64	15.9	-54.6	Clear	None
14:25	5	250	70.4	0.00	6.94	1.71	22.8	0.9	15.7	-53.6	Clear	None
14:30	5	250	70.4	0.00	6.97	1.7	20.6	4.24	15.9	-50.6	Clear	None
14:35	5	250	70.4	0.00	6.99	1.72	19.2	4.65	15.6	-48.7	Clear	None
14:40	5	250	70.4	0.00	7	1.69	18.1	4.83	15.5	-41.5	Clear	None
14:45	5	250	70.4	0.00	7	1.68	16.6	5.17	15.2	-35.9	Clear	None
14:50	5	250	70.4	0.00	7.02	1.69	14.9	5.77	15.1	-33.7	Clear	None
14:55	5	250	70.4	0.00	7.03	1.68	10.9	5.78	14.8	-29.1	Clear	None
15:00	5	250	70.4	0.00	7.04	1.69	10.2	5.78	15.2	-24.7	Clear	None
15:05	5	250	70.4	0.00	7.05	1.68	10.2	5.85	14.9	-23.4	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW14-54			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	12.96	**Total Depth (ft-bmp)**	19.18	**Water Column(ft)**	6	**Gallons in Well**	1.01
MP Elevation		**Pump Intake (ft-bmp)**	17	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:35	**Volumes Purged**		**Sample ID**	MW-14-54	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:35		250	12.96	0.00	8.31	1.42	5.58	0.33	15.1	-162.8	Clear	Gas
10:40	5	250	12.96	0.00	8.31	1.43	0.02	0.33	14.9	-186.5	Clear	Gas
10:45	5	250	13.2	0.00	8.33	1.42	0.02	0.15	14.8	-254.5	Clear	Gas
10:50	5	250	13.2	0.00	8.36	1.42	0.02	0.13	14.8	-275.2	Clear	Gas
10:55	5	250	13.2	0.00	8.37	1.42	1.12	0.11	14.6	-283.6	Clear	Gas
11:00	5	250	13.2	0.00	8.37	1.41	6.81	0.08	14.5	-291.3	Clear	Gas
11:05	5	250	13.2	0.00	8.38	1.41	1.82	0.06	14.4	-297.4	Clear	Gas
11:10	5	250	13.2	0.00	8.38	1.4	7.94	0.06	14.3	-301.3	Clear	Gas
11:15	5	250	13.2	0.00	8.4	1.37	4.17	0.07	14.5	-303.5	Clear	Gas
11:20	5	250	13.2	0.00	8.42	1.33	4.25	0.06	14.5	-307.3	Clear	Gas
11:25	5	250	13.2	0.00	8.43	1.29	4.19	0.06	14.6	-309.5	Clear	Gas
11:30	5	250	13.2	0.00	8.44	1.28	4.16	0.06	14.7	-309.9	Clear	Gas
11:35	5	250	13.2	0.00	8.44	1.29	4.16	0.06	14.6	-309.9	Clear	Gas

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-55			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	16.14	**Total Depth (ft-bmp)**	20.3	**Water Column(ft)**	4	**Gallons in Well**	0.68
MP Elevation		**Pump Intake (ft-bmp)**	18	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:25	**Volumes Purged**		**Sample ID**	MW-14-55	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:15		250	16.14	0.00	7.43	0.64	105	7.42	13.8	26.8	Clear	None
12:20	5	250	16.4	0.00	7.39	0.64	48.6	6.65	13.5	19.9	Clear	None
12:25	5	250	16.4	0.00	7.39	0.64	45.3	6.37	13.5	19	Clear	None
12:30	5	250	16.4	0.00	7.39	0.64	42.4	6.47	13.3	24.1	Clear	None
12:35	5	250	16.4	0.00	7.39	0.65	33.2	6.37	12.8	28.2	Clear	None
12:40	5	250	16.4	0.00	7.39	0.64	30.4	6.32	13	31.5	Clear	None
12:45	5	250	16.4	0.00	7.4	0.64	29.1	6.45	13.1	35.1	Clear	None
12:50	5	250	16.4	0.00	7.4	0.64	21.2	6.72	12.5	38.5	Clear	None
12:55	5	250	16.4	0.00	7.41	0.64	17.2	6.27	13.3	43.6	Clear	None
13:00	5	250	16.4	0.00	7.41	0.64	16.4	6.39	13.3	43.8	Clear	None
13:05	5	250	16.4	0.00	7.41	0.64	14.3	6.43	13.4	45.2	Clear	None
13:10	5	250	16.4	0.00	7.42	0.64	12.7	6.23	13.1	47.9	Clear	None
13:15	5	250	16.4	0.00	7.42	0.64	11.7	6.27	12.9	49.9	Clear	None
13:20	5	250	16.4	0.00	7.42	0.64	7.97	6.31	13.3	50.5	Clear	None
13:25	5	250	16.4	0.00	7.42	0.64	10.6	6.36	13.2	50.6	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-56			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.75	**Total Depth (ft-bmp)**	78.96	**Water Column(ft)**	16	**Gallons in Well**	2.63
MP Elevation		**Pump Intake (ft-bmp)**	76.46	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:15	**Volumes Purged**		**Sample ID**	MW-14-56_060820	**Sampled by**	Austin Westhuis
Purge Start	14:55	**Gallons Purged**					
Purge End	15:20			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:00		200	62.75	0.26	6.74	4.36	3.76	7.07	14.2	-48.5	Clear	None
15:05	5	200	62.75	0.53	6.76	4.35	2.59	6.36	13.9	-49.1	Clear	None
15:10	5	200	62.75	0.79	6.72	4.35	2.16	5.49	13.9	-49.4	Clear	None
15:10	1440	200	62.75	1.06	6.71	4.34	1.73	5.26	13.8	-49.6	Clear	None
15:15	5	200	62.75	1.32	6.71	4.33	1.6	5.14	13.8	-49.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-57			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Steel
Static Water Level (ft-bmp)	12.95	**Total Depth (ft-bmp)**	21.2	**Water Column(ft)**	8	**Gallons in Well**	1.34
MP Elevation		**Pump Intake (ft-bmp)**	19	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:55	**Volumes Purged**		**Sample ID**	MW-14-57	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:10		250	12.95	0.00	7.36	0.69	56.1	1.88	14.2	95.8	Clear	None
09:15	5	250	13.02	0.00	7.29	0.69	65.6	1.76	14.2	92.6	Clear	None
09:20	5	250	13.02	0.00	7.35	0.68	61.3	1.59	13.9	81.5	Clear	None
09:25	5	250	13.02	0.00	7.4	0.66	57.3	1.46	13.9	75.7	Clear	None
09:30	5	250	13.02	0.00	7.43	0.65	39.9	1.39	14	72.1	Clear	None
09:35	5	250	13.02	0.00	7.45	0.64	21.7	1.38	14	68.4	Clear	None
09:40	5	250	13.02	0.00	7.46	0.64	16.8	1.34	13.9	66.4	Clear	None
09:45	5	250	13.02	0.00	7.47	0.64	12	1.37	14.1	64.6	Clear	None
09:50	5	250	13.02	0.00	7.48	0.64	11.2	1.35	14	62.9	Clear	None
09:55	5	250	13.02	0.00	7.48	0.64	11.4	1.37	13.9	62.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-14-58			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.08	**Total Depth (ft-bmp)**	29.9	**Water Column(ft)**	16	**Gallons in Well**	2.57
MP Elevation		**Pump Intake (ft-bmp)**	27	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:25	**Volumes Purged**		**Sample ID**	MW-14-58_060920	**Sampled by**	Jacob Pisarkiewicz
Purge Start	13:35	**Gallons Purged**					
Purge End	14:20			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:45		200	14.1	0.00	6.68	5.37	91.3	0.31	19.5	-71.1	Clear	None
13:50	5	200	14.1	0.00	6.68	5.4	63.3	0.26	19.5	-72.4	Clear	None
13:55	5	200	14.1	0.00	6.69	5.31	35.5	0.22	19.9	-74.5	Clear	None
14:00	5	200	14.1	0.00	6.7	5.3	28.1	0.21	20.3	-75.5	Clear	None
14:05	5	200	14.1	0.00	6.71	5.18	25.5	0.21	20.2	-76.5	Clear	None
14:10	5	200	14.1	0.00	6.72	5.05	22.6	0.19	19.8	-77.2	Clear	None
14:15	5	200	14.1	0.00	6.72	5.04	21.1	0.19	20.1	-77.5	Clear	None
14:20	5	200	14.1	0.00	6.73	5.02	20.8	0.19	19.9	-78.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL
1,4-Dioxane	40 mL Glass	0	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-59			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.95	**Total Depth (ft-bmp)**	18.8	**Water Column(ft)**	11	**Gallons in Well**	1.76
MP Elevation		**Pump Intake (ft-bmp)**	16.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:15	**Volumes Purged**		**Sample ID**	MW-14-59_060920	**Sampled by**	Jacob Pisarkiewicz
Purge Start	10:30	**Gallons Purged**					
Purge End	11:05			**Replicate/ Code No.**	Dup-01		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:40		200	8.06	0.00	7.24	0.65	7.7	0.27	18.7	-33.3	Clear	None
10:45	5	200	8.13	0.00	7.19	0.66	6.98	0.2	18.2	-43.6	Clear	None
10:50	5	200	8.13	0.00	7.17	0.66	5.95	0.19	18.8	-46.8	Clear	None
10:55	5	200	8.13	0.00	7.19	0.67	4.32	0.25	18.9	-60.1	Clear	None
11:00	5	200	8.13	0.00	7.21	0.67	5.04	0.24	18.7	-62.5	Clear	None
11:05	5	200	8.13	0.00	7.19	0.67	4.04	0.23	18.3	-64.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL
SVOCs	1L Glass	1	None
1,4-Dioxane	40 mL Glass	0	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-60			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.28	**Total Depth (ft-bmp)**	22.5	**Water Column(ft)**	10	**Gallons in Well**	1.66
MP Elevation		**Pump Intake (ft-bmp)**	20	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:10	**Volumes Purged**		**Sample ID**	MW-14-60_060920	**Sampled by**	Jacob Pisarkiewicz
Purge Start	12:10	**Gallons Purged**					
Purge End	13:05			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:20		200	12.3	0.00	7.17	1.29	122	0.39	18.4	-102.6	Clear	None
12:25	5	200	12.3	0.00	7.2	1.28	93.3	0.17	18.6	-112.7	Clear	None
12:30	5	200	12.3	0.00	7.2	1.28	75.6	0.17	18.6	-114.6	Clear	None
12:35	5	200	12.3	0.00	7.24	1.27	71.5	0.14	18.1	-117.2	Clear	None
12:40	5	200	12.3	0.00	7.22	1.27	69.5	0.14	18.1	-116.2	Clear	None
12:45	5	200	12.3	0.00	7.2	1.27	60.8	0.14	18.1	-115.6	Clear	None
12:50	5	200	12.3	0.00	7.2	1.27	52.2	0.15	18.3	-115.3	Clear	None
12:55	5	200	12.3	0.00	7.23	1.27	48.9	0.14	18.4	-117.7	Clear	None
13:00	5	200	12.3	0.00	7.25	1.28	46.1	0.13	18.8	-119.5	Clear	None
13:05	5	200	12.3	0.00	7.25	1.27	44.9	0.14	18.4	-119.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL
SVOCs	1L Glass	1	None
1,4-Dioxane	40 mL Glass	0	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Completion: Stick-up

Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-61			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.94	**Total Depth (ft-bmp)**	77.5	**Water Column(ft)**	14	**Gallons in Well**	2.2
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	13:00	**Volumes Purged**	1.14	**Sample ID**	MW-14-61_060220	**Sampled by**	D. Stockard
Purge Start	11:40	**Gallons Purged**	2.50				
Purge End	13:00			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:50		150	63.9	0.00	6.62	1.82	697	0.46	17.3	155.5	None	None
12:10	15	150	63.99	0.00	6.83	1.88	134	0.41	17.5	43.3	None	None
12:15	5	150	63.99	0.00	6.87	1.9	91.9	0.37	17.4	31.1	None	None
12:25	10	150	63.94	0.00	6.88	-12.2	110	0.75	17.2	-12.8	None	None
12:30	5	150	63.95	0.00	6.83	1.93	112	0.48	16.9	-18.9	None	None
12:36	6	150	63.95	0.00	6.79	1.95	76.8	0.36	16.8	-30.5	None	None
12:42	6	150	63.95	0.00	6.81	1.97	56	0.37	16.7	-38.6	None	None
12:47	5	150	64.01	0.00	6.82	1.97	49.6	0.35	16.6	-41.4	None	None
12:57	10	150	64.01	0.00	6.85	1.97	51.7	0.36	16.8	-45.2	None	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	1	None
VOCs	40 mL Glass	3	HCL
PFAS	250 mL Plastic	2	None
Nitrate/Nitrite	125 mL Plastic	1	None
	250 mL Plastic	1	H2SO4

Comments: Also sampled TP and TKN

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:

Condition of Well:

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Completion: NA

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-14-62			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.72	**Total Depth (ft-bmp)**	19.6	**Water Column(ft)**	14	**Gallons in Well**	2.26
MP Elevation		**Pump Intake (ft-bmp)**	17	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:00	**Volumes Purged**		**Sample ID**	MW-14-62_060920	**Sampled by**	Jacob Pisarkiewicz
Purge Start	09:15	**Gallons Purged**					
Purge End	09:55			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:25		200	5.83	0.00	10.82	0.49	0.02	0.25	17.7	14.4	Clear	None
09:30	5	200	5.83	0.00	11.03	0.58	0.02	0.14	17.3	-46.4	Clear	None
09:35	5	200	5.83	0.00	11.13	0.58	0.02	0.14	17.2	-73.6	Clear	None
09:40	5	200	5.83	0.00	11.14	0.58	0.02	0.11	17.3	-86.6	Clear	None
09:45	5	200	5.83	0.00	11.2	0.57	0.02	0.11	17.2	-98.2	Clear	None
09:50	5	200	5.83	0.00	11.18	0.55	0.02	0.12	17.4	-101.1	Clear	None
09:55	5	200	5.83	0.00	11.17	0.56	0.02	0.11	17.3	-103.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
VOCs	40 mL Glass	3	HCL
SVOCs	1L Glass	1	None
1,4-Dioxane	40 mL Glass	0	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-14-63			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.12	**Total Depth (ft-bmp)**	77.12	**Water Column(ft)**	19	**Gallons in Well**	3.09
MP Elevation		**Pump Intake (ft-bmp)**	74.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:15	**Volumes Purged**	0.47	**Sample ID**	MW-14-63_060820	**Sampled by**	Billy J Cobern
Purge Start	08:20	**Gallons Purged**	1.45				
Purge End	09:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:20		100	58.12	0.00							Clear	No
08:25	5	100	58.28	0.13	6.89	1.21	98.5	4.39	16.2	329	Clear	No
08:30	5	100	58.45	0.26	6.91	1.2	81.4	3.87	16.1	5.3	Clear	No
08:35	5	100	58.55	0.40	6.94	1.19	76.8	4.26	16.2	-16.7	Clear	No
08:40	5	100	58.49	0.53	6.95	1.19	67.9	4.09	16.6	-31.2	Clear	No
08:45	5	100	58.44	0.66	6.95	1.2	51.2	3.98	16.4	-47.9	Clear	No
08:50	5	100	58.44	0.79	6.95	1.2	45.1	3.99	16.4	-50.1	Clear	No
08:55	5	100	58.44	0.92	6.95	1.2	33.1	3.83	16.5	-51.7	Clear	No
09:00	5	100	58.44	1.06	6.95	1.2	23.8	3.79	16.4	-53.3	Clear	No
09:05	5	100	58.44	1.19	6.95	1.2	17.7	3.8	16.4	-54.7	Clear	No
09:10	5	100	58.44	1.32	6.95	1.2	17.4	3.85	16.5	-56.1	Clear	No
09:15	5	100	58.44	1.45	6.95	1.2	17.9	3.81	16.5	-57.6	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	40 mL Glass	3	HCL

Comments: All parameters stablized, but turbidity was above 10 NTU

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Condition of Well: Good

Well Locked at Arrival: yes

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Completion: Stick-up

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-14-64			**Date**	6/11/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.41	**Total Depth (ft-bmp)**	107.2	**Water Column(ft)**	45	**Gallons in Well**	7.28
MP Elevation		**Pump Intake (ft-bmp)**	103	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:35	**Volumes Purged**		**Sample ID**	MW-14-64_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	11:00	**Gallons Purged**					
Purge End	11:30			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:05		200	62.41	0.00	7.01	1.74	7.06	5.02	17.2	-23.3	Clear	None
11:10	5	200	62.5	0.00	6.97	1.77	2.04	1.87	16.8	-60.3	Clear	None
11:15	5	200	62.5	0.00	6.99	1.76	1.23	1.69	16.7	-67.2	Clear	None
11:20	5	200	62.5	0.00	6.99	1.77	0.02	1.72	17.2	-70.9	Clear	None
11:25	5	200	62.5	0.00	7.01	1.76	0.02	1.69	17.6	-73.6	Clear	None
11:30	5	200	62.5	0.00	7.01	1.77	0.02	1.68	17.6	-76.5	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments: Pump stopped working, had to swap to different pump

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-14-66			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.38	**Total Depth (ft-bmp)**	22.22	**Water Column(ft)**	18	**Gallons in Well**	2.9
MP Elevation		**Pump Intake (ft-bmp)**	20	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	15:20	**Volumes Purged**		**Sample ID**	MW-14-66_060220	**Sampled by**	Jacob Pisarkiewicz
Purge Start	14:40	**Gallons Purged**					
Purge End	15:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:50		200	5.24	0.00	7.49	0.86	0.41	0.28	18.4	43.2	Clear	None
14:55	5	200	5.65	0.00	7.43	0.86	0.02	0.2	18.7	16.7	Clear	None
15:00	5	200	5.65	0.00	7.4	0.88	0.02	0.23	18.3	3.8	Clear	None
15:05	5	200	5.65	0.00	7.39	0.88	0.02	0.23	18.2	-2.8	Clear	None
15:10	5	200	5.65	0.00	7.37	0.88	0.02	0.25	18.6	-3.6	Clear	None
15:15	5	200	5.65	0.00	7.37	0.87	0.02	0.22	18.8	-4.8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
Metals	250 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-14-67			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.93	**Total Depth (ft-bmp)**	20.8	**Water Column(ft)**	16	**Gallons in Well**	2.58
MP Elevation		**Pump Intake (ft-bmp)**	18	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	10:35	**Volumes Purged**		**Sample ID**	MW-14-67_060420	**Sampled by**	Jacob Pisarkiewicz
Purge Start	21:50	**Gallons Purged**					
Purge End	10:30			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:05		200	5.25	0.00	7.26	1.6	15.3	0.29	15.3	65.1	Clear	None
10:10	5	200	5.25	0.00	7.26	1.61	11.1	0.25	15.2	62.9	Clear	None
10:15	5	200	5.4	0.00	7.26	1.63	6.12	0.22	15	60.7	Clear	None
10:20	5	200	5.4	0.00	7.25	1.64	3.34	0.2	15.3	59.5	Clear	None
10:25	5	200	5.4	0.00	7.24	1.69	2.52	0.2	15.1	57.9	Clear	None
10:30	5	200	5.4	0.00	7.23	1.69	2.2	20	15.3	58.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None
Metals	250 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-14-70			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.78	**Total Depth (ft-bmp)**	23.1	**Water Column(ft)**	13	**Gallons in Well**	2.16
MP Elevation		**Pump Intake (ft-bmp)**	20	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	16:10	**Volumes Purged**		**Sample ID**	MW-14-70_060320	**Sampled by**	Jacob Pisarkiewicz
Purge Start	15:45	**Gallons Purged**					
Purge End	16:05			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:50		200	10.35	0.00	7.23	1.35	5.17	0.43	16.1	23.3	Clear	None
15:55	5	200	10.55	0.00	7.22	1.35	2.93	0.25	16	19.9	Clear	None
16:00	5	200	10.55	0.00	7.22	1.35	3.13	0.2	15.9	17	Clear	None
16:05	5	200	10.55	0.00	7.23	1.35	2.45	0.21	16	16.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-15-71			**Date**	6/11/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.02	**Total Depth (ft-bmp)**	119	**Water Column(ft)**	58	**Gallons in Well**	9.42
MP Elevation		**Pump Intake (ft-bmp)**	115	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:40	**Volumes Purged**		**Sample ID**	MW-15-71_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	09:25	**Gallons Purged**					
Purge End	10:35			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:10		200	61.02	0.00	7.08	1.5	11.6	2.77	16.9	37.7	Clear	None
10:15	5	200	61.02	0.00	7.05	1.5	9.95	1.75	14.3	43.5	Clear	None
10:20	5	200	61.02	0.00	7.04	1.5	8.12	1.43	14.3	43.8	Clear	None
10:25	5	200	61.02	0.00	7.02	1.5	7.39	1.33	14.3	45	Clear	None
10:30	5	200	61.02	0.00	7.01	1.5	5.99	1.27	14.3	45.7	Clear	None
10:35	5	200	61.02	0.00	7	1.49	6.03	1.25	14.1	45.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments: Pump stopped working, had to swap to different pump

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-15-72			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.62	**Total Depth (ft-bmp)**	70.3	**Water Column(ft)**	13	**Gallons in Well**	2.06
MP Elevation		**Pump Intake (ft-bmp)**	67	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	16:10	**Volumes Purged**	1.94	**Sample ID**	MW-15-72_060220	**Sampled by**	D. Stockard
Purge Start	14:40	**Gallons Purged**	4.00				
Purge End	16:09			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:40		150	57.8	0.00	7.08	1.23	134	7.17	20.1	-67.9	None	None
14:50	10	150	57.57	0.00	7.12	1.26	88.4	4.28	19.4	-72.4	None	None
14:55	5	150	57.6	0.00	7.07	1.33	63.3	3.69	19.8	-75.4	None	None
15:00	5	150	57.6	0.00	7.04	1.33	57.9	4.19	19.9	-72.1	None	None
15:05	5	150	57.56	0.00	7.13	1.32	87.1	4.92	21.8	-74.8	None	None
15:20	15	150	57.57	0.00	7.33	1.34	84	7.6	18.7	-92.6	None	None
15:50	30	150	57.57	0.00	6.8	1.31	146	0.32	17.2	-74.4	None	None
15:55	5	150	57.57	0.00	6.85	1.35	90.9	0.28	17.9	-79.9	None	None
16:00	5	150	57.57	0.00	6.88	1.39	64.5	0.27	17	-84.8	None	None
16:08	8	150	57.57	0.00	6.9	1.4	50.4	0.18	17.1	-84.5	None	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	1	None
1,4-D and VOCs	40 mL Glass	3	HCL
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure:
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-15-73			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.49	**Total Depth (ft-bmp)**	81.42	**Water Column(ft)**	18	**Gallons in Well**	2.91
MP Elevation		**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:15	**Volumes Purged**	0.54	**Sample ID**	MW-15-73_060820	**Sampled by**	Billy J Cobern
Purge Start	11:15	**Gallons Purged**	1.59				
Purge End	12:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:15		100	63.49	0.00							Clear	No
11:20	5	100	63.79	0.13	6.78	2.79	584	2.48	16.9	-9.6	Clear	No
11:25	5	100	63.79	0.26	6.77	2.77	513	1	16.9	-26	Clear	No
11:30	5	100	63.79	0.40	6.76	2.78	445	0.72	6.76	-37.1	Clear	No
11:35	5	100	63.79	0.53	6.75	2.82	398	0.62	20.7	-43.1	Clear	No
11:40	5	100	63.79	0.66	6.76	2.89	279	0.6	19.2	-45.2	Clear	No
11:45	5	100	63.79	0.79	6.76	2.87	234	0.47	18.5	-43.9	Clear	No
11:50	5	100	63.79	0.92	6.76	2.86	213	0.41	19.4	-44.4	Clear	No
11:55	5	100	63.79	1.06	6.76	2.87	189	0.43	19.5	-44.7	Clear	No
12:00	5	100	63.79	1.19	6.76	2.87	157	0.38	19.5	-44.7	Clear	No
12:05	5	100	63.79	1.32	6.76	2.88	113	0.39	19	-44.5	Clear	No
12:10	5	100	63.79	1.45	6.76	2.88	69.9	0.38	19	-44.4	Clear	No
12:15	5	100	63.79	1.59	6.76	2.88	79.2	0.36	19	-44.1	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	40 mL Glass	3	HCL

Comments: Turbidity didn't stabilize or fall below 10 NTU

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Condition of Well:	Good	Well Locked at Departure:	
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-74			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.58	**Total Depth (ft-bmp)**	75	**Water Column(ft)**	12	**Gallons in Well**	2.02
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	13:40	**Volumes Purged**	1.73	**Sample ID**	MW-16-74_060520	**Sampled by**	D. Stockard
Purge Start	12:40	**Gallons Purged**	3.50				
Purge End	13:40			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:40		200	62.58	0.00	6.86	2.37	558	0.71	19.6	87.6	None	None
12:50	10	200	62.59	0.00	6.9	2.26	501	0.63	18.4	62.3	None	None
12:55	5	200	62.62	0.00	6.92	2.24	355	0.6	18.4	56.2	None	None
13:00	5	200	62.62	0.00	6.93	2.14	163	0.45	17.7	36.6	None	None
13:05	5	200	62.53	0.00	6.95	2.12	93.3	0.42	17.5	31.3	None	None
13:10	5	200	62.56	0.00	6.96	2.07	57.4	0.42	16.7	24.4	None	None
13:20	10	200	62.57	0.00	7	2.03	29	0.47	17	6.2	None	None
13:25	5	200	62.64	0.00	7.01	2.02	24.2	0.48	16.1	1.3	None	None
13:30	5	200	62.64	0.00	7	2.01	22.2	0.48	16.5	-6.3	None	None
13:35	5	200	62.64	0.00	6.98	2.04	19.3	0.49	16.3	-7.9	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-75			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.69	**Total Depth (ft-bmp)**	74.9	**Water Column(ft)**	16	**Gallons in Well**	2.63
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:30	**Volumes Purged**	1.52	**Sample ID**	MW-16-75_060820	**Sampled by**	D. Stockard
Purge Start	13:15	**Gallons Purged**	4.00				
Purge End	14:30			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:15		200	58.69	0.00	6.91	2.14	345	0.67	15.2	27.8	None	None
13:25	10	200	60.42	0.00	6.93	2.16	221	0.71	15.4	24.1	None	None
13:35	10	200	61.46	0.00	6.98	2.14	145	0.62	15.1	11.5	None	None
13:40	5	200	61.62	0.00	6.98	2.17	120	0.81	14.9	5.6	None	None
13:50	10	200	61.99	0.00	7.03	2.17	65.5	0.58	15.6	-9.9	None	None
14:30	40	200	62.75	0.00	7.07	2.15	65.2	0.32	16.1	-38.5	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-76			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.74	**Total Depth (ft-bmp)**	83.5	**Water Column(ft)**	23	**Gallons in Well**	3.7
MP Elevation		**Pump Intake (ft-bmp)**	80.5	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	17:40	**Volumes Purged**	0.68	**Sample ID**	MW-16-76_060820	**Sampled by**	D. Stockard
Purge Start	16:40	**Gallons Purged**	2.50				
Purge End	17:40			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:40		200	60.74	0.00	6.98	2.03	51.3	4.02	16.5	42.4	None	None
16:45	5	200	61.72	0.00	6.95	2.05	509	1.22	16.1	38.1	None	None
17:00	15	200	63.45	0.00	7.08	1.9	80.6	0.67	14.1	10.8	None	None
17:05	5	200	63.78	0.00	7.08	1.89	56.9	0.93	14.9	4.5	None	None
17:10	5	200	63.78	0.00	7.12	1.89	33.8	0.37	14.1	-8.4	None	None
17:15	5	200	64.67	0.00	7.13	1.89	23.6	0.37	14.2	-10.1	None	None
17:20	5	200	65.02	0.00	7.15	1.89	15.2	0.34	14.6	-20	None	None
17:25	5	200	65.36	0.00	7.14	1.89	12.8	0.3	14.6	-23.9	None	None
17:30	5	200	65.47	0.00	7.17	1.92	12	0.28	13.9	-27.8	None	None
17:35	5	200	65.47	0.00	7.18	1.95	10.9	0.29	14	-31.8	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-77			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.53	**Total Depth (ft-bmp)**	75.2	**Water Column(ft)**	18	**Gallons in Well**	2.87
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	16:05	**Volumes Purged**	0.70	**Sample ID**	MW-16-77_060820	**Sampled by**	D. Stockard
Purge Start	15:00	**Gallons Purged**	2.00				
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:05		200	57.53	0.00	6.96	2.16	573	2.23	17.6	-4.6	None	None
15:20	15	200	59.93	0.00	6.98	2.25	240	2.04	18.9	-25.9	None	None
15:30	10	200	59.93	0.00	7.1	2.23	183	1.85	18.9	-52	None	None
15:35	5	200	61.91	0.00	7.11	2.22	121	1.93	18.4	-56.2	None	None
15:45	10	200	61.91	0.00	7.11	2.17	38.4	1.71	18.2	-64.4	None	None
15:55	10	200	64.55	0.00	7.16	2.14	48.9	0.74	19	-71.2	None	None
16:00	5	200	64.81	0.00	7.15	2.14	35	0.74	18.8	-70.9	None	None
16:03	3	200	65.22	0.00	7.13	2.14	32.9	0.74	18.8	-69.2	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-78			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.11	**Total Depth (ft-bmp)**	77	**Water Column(ft)**	16	**Gallons in Well**	2.58
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	#Error	**Volumes Purged**	1.16	**Sample ID**	MW-16-78_060920	**Sampled by**	D. Stockard
Purge Start	14:25	**Gallons Purged**	3.00				
Purge End	15:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:25		200	61.11	0.00	6.8	1.82	132	0.97	18.5	28.4	None	None
14:30	5	200	61.114	0.00	6.81	1.82	68.1	0.67	18.5	16.7	None	None
14:40	10	200	61.17	0.00	6.86	1.82	34.7	0.38	17.9	-24.2	None	None
14:50	10	200	61.17	0.00	6.91	1.82	22.7	0.3	18.1	-45.9	None	None
14:55	5	200	61.12	0.00	6.94	1.81	19.3	0.35	18.2	-50	None	None
15:05	10	200	61.12	0.00	6.97	1.82	6.21	0.28	18	-60	None	None
15:10	5	200	61.12	0.00	6.94	1.81	6.91	0.27	18.1	-61.5	None	None
15:15	5	200	61.12	0.00	6.95	1.81	6.22	0.26	18.4	-63.4	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-16-79			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.65	**Total Depth (ft-bmp)**	77.2	**Water Column(ft)**	16	**Gallons in Well**	2.53
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	12:25	**Volumes Purged**	0.99	**Sample ID**	MW-16-79_060920	**Sampled by**	D. Stockard
Purge Start	10:50	**Gallons Purged**	2.50				
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:50		200	61.65	0.00	6.8	0.94	222	1.75	17.8	103.3	None	None
11:00	10	200	63.25	0.00	6.82	0.94	584	1.59	17.1	90.9	None	None
11:05	5	200	64.15	0.00	6.91	0.94	312	1.41	17.4	63.4	None	None
11:10	5	200	64.45	0.00	6.98	0.93	373	1.68	18.1	49.2	None	None
11:15	5	200	65.11	0.00	7.09	0.93	268	0.55	18.3	19.7	None	None
11:25	10	200	65.11	0.00	7.14	0.93	128	0.43	19.1	-30.3	None	None
11:30	5	200	66.95	0.00	7.19	0.93	123	0.44	18.8	-41.7	None	None
11:40	10	200	66.95	0.00	7.08	0.93	68.4	0.41	18.3	-44.1	None	None
12:20	40	200	67.91	0.00	7.14	0.94	50.7	0.79	19.2	-70.9	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-80			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	55.79	**Total Depth (ft-bmp)**	74.2	**Water Column(ft)**	18	**Gallons in Well**	2.99
MP Elevation		**Pump Intake (ft-bmp)**	71.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:40	**Volumes Purged**	0.49	**Sample ID**	MW-16-80_060820	**Sampled by**	Billy J Cobern
Purge Start	09:45	**Gallons Purged**	1.45				
Purge End	10:40			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:45		100	55.79	0.00							Clear	No
09:50	5	100	56.08	0.13	7.1	1.1	67.9	3.91	16	53.8	Clear	No
09:55	5	100	56.19	0.26	7.08	1.22	63.5	1.86	15.1	20.8	Clear	No
10:00	5	100	56.16	0.40	7.09	1.22	56.7	1.48	15.6	-0.9	Clear	No
10:05	5	100	56.16	0.53	7.09	1.23	41.2	1.48	15.9	-6.4	Clear	No
10:10	5	100	56.12	0.66	7.09	1.24	29.1	1.39	16.3	-17.9	Clear	No
10:15	5	100	56.12	0.79	7.09	1.24	22.3	1.44	16.3	-19.8	Clear	No
10:20	5	100	56.12	0.92	7.08	1.24	17.9	1.48	16.5	-21.9	Clear	No
10:25	5	100	56.12	1.06	7.08	1.24	14.2	1.35	16.6	-23.7	Clear	No
10:30	5	100	56.12	1.19	7.08	1.24	10.2	1.3	16.7	-25.6	Clear	No
10:35	5	100	56.12	1.32	7.08	1.24	9.92	1.3	16.6	-27.4	Clear	No
10:40	5	100	56.12	1.45	7.08	1.25	9.91	1.31	16.6	-29.1	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	40 mL Glass	3	HCL

Comments: Both tabs broken

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

Condition of Well: OK

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Completion: Flush mount

Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-81			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.54	**Total Depth (ft-bmp)**	77.3	**Water Column(ft)**	15	**Gallons in Well**	2.4
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:45	**Volumes Purged**	1.04	**Sample ID**	MW-16-81_060520	**Sampled by**	D. Stockard
Purge Start	14:00	**Gallons Purged**	2.50				
Purge End	#Error			**Replicate/ Code No.**	DUP-02		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:00		200	62.54	0.00	6.95	1.65	339	0.54	17.2	-45.3	None	None
14:10	10	200	63.07	0.00	6.96	1.64	173	0.48	17.1	-50.8	None	None
14:15	5	200	63.15	0.00	6.96	1.63	105	0.38	17.8	-55.4	None	None
14:20	5	200	63.26	0.00	7.04	1.63	67.1	0.31	18.3	-67	None	None
14:25	5	200	63.06	0.00	7.12	1.64	52.3	0.26	19.1	-80.1	None	None
14:30	5	200	63.05	0.00	7.1	1.65	18.4	0.26	18.7	-83.2	None	None
14:35	5	200	63.07	0.00	7.08	1.67	20.2	0.26	18.5	-84	None	None
14:40	5	200	63.06	0.00	7.05	1.65	19.7	0.26	18.7	-81.3	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-81			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.54	**Total Depth (ft-bmp)**	77.3	**Water Column(ft)**	15	**Gallons in Well**	2.4
MP Elevation		**Pump Intake (ft-bmp)**	74	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:45	**Volumes Purged**	1.04	**Sample ID**	MW-16-81_060520	**Sampled by**	D. Stockard
Purge Start	14:00	**Gallons Purged**	2.50				
Purge End	#Error			**Replicate/ Code No.**	DUP-02		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:00		200	62.54	0.00	6.95	1.65	339	0.54	17.2	-45.3	None	None
14:10	10	200	63.07	0.00	6.96	1.64	173	0.48	17.1	-50.8	None	None
14:15	5	200	63.15	0.00	6.96	1.63	105	0.38	17.8	-55.4	None	None
14:20	5	200	63.26	0.00	7.04	1.63	67.1	0.31	18.3	-67	None	None
14:25	5	200	63.06	0.00	7.12	1.64	52.3	0.26	19.1	-80.1	None	None
14:30	5	200	63.05	0.00	7.1	1.65	18.4	0.26	18.7	-83.2	None	None
14:35	5	200	63.07	0.00	7.08	1.67	20.2	0.26	18.5	-84	None	None
14:40	5	200	63.06	0.00	7.05	1.65	19.7	0.26	18.7	-81.3	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-81 (resample for missed parameters)			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 93F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	124.88	**Total Depth (ft-bmp)**	154.5	**Water Column(ft)**	30	**Gallons in Well**	4.81
MP Elevation		**Pump Intake (ft-bmp)**	148.7	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:00	**Volumes Purged**		**Sample ID**	MW-16-81_060920	**Sampled by**	Austin Westhuis
Purge Start	23:30	**Gallons Purged**	2.50				
Purge End	12:05			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:35		200	62.34	0.26	7	1.37	21.9	0.02	16.2	-89.5	Clear	None
11:40	5	200	62.34	0.53	7.02	1.34	14.5	0.01	15.8	-90.9	Clear	None
11:45	5	200	62.34	0.79	7	1.35	5.29	0.02	15.8	-90.4	Clear	None
11:50	5	200	62.34	1.06	6.99	1.34	2.42	0.01	15.6	-87.5	Clear	None
11:55	5	200	62.34	1.32	6.98	1.35	2.31	0.01	15.6	-86.1	Clear	None
12:00	5	200	62.34	1.59	6.97	1.37	2.19	0.01	15.5	-86.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-82			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.1	**Total Depth (ft-bmp)**	77.1	**Water Column(ft)**	14	**Gallons in Well**	2.27
MP Elevation		**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:20	**Volumes Purged**		**Sample ID**	MW-16-82_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	11:50	**Gallons Purged**					
Purge End	12:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:55		200	63.5	0.00	7.08	1.2	1.24	0.57	20.9	-99.9	Clear	None
12:00	5	200	63.5	0.00	7.04	1.2	0.02	0.41	20.7	-100.1	Clear	None
12:05	5	200	63.5	0.00	7.01	1.2	0.25	0.38	20.4	-98.9	Clear	None
12:10	5	200	63.5	0.00	7.06	1.19	0.02	0.38	21.1	-100.1	Clear	None
12:15	5	200	63.5	0.00	7.09	1.2	0.02	0.36	21.5	-102.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-83			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.12	**Total Depth (ft-bmp)**	79.03	**Water Column(ft)**	15	**Gallons in Well**	2.42
MP Elevation		**Pump Intake (ft-bmp)**	61.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:40	**Volumes Purged**	0.55	**Sample ID**	MW-16-83	**Sampled by**	Billy J Cobern
Purge Start	12:50	**Gallons Purged**	1.32				
Purge End	13:40			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:50		100	64.12	0.00							Clear	No
12:55	5	100	64.42	0.13	7.18	4.03	139	5.68	25.3	91.9	Clear	No
13:00	5	100	64.59	0.26	6.94	4.12	99.7	3.04	24.4	25.9	Clear	No
13:05	5	100	64.69	0.40	6.9	4.15	88.8	1.58	23.5	-11.8	Clear	No
13:10	5	100	64.69	0.53	6.89	4.15	70.3	1.08	23.1	-35.9	Clear	No
13:15	5	100	64.69	0.66	6.89	4.15	63.6	0.65	22.2	-53.1	Clear	No
13:20	5	100	64.69	0.79	6.89	4.13	58.2	0.47	22.1	-60.2	Clear	No
13:25	5	100	64.69	0.92	6.89	4.13	53.4	0.46	22.2	-62	Clear	No
13:30	5	100	64.69	1.06	6.89	4.13	49.8	0.4	22.4	-63.8	Clear	No
13:35	5	100	64.69	1.19	6.89	4.14	46.8	0.41	22.4	-65	Clear	No
13:40	5	100	64.69	1.32	6.89	4.14	47.6	0.4	22.4	-65.6	Clear	No

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-84			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.9	**Total Depth (ft-bmp)**	82.7	**Water Column(ft)**	18	**Gallons in Well**	2.89
MP Elevation		**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	10:50	**Volumes Purged**	1.21	**Sample ID**	MW-16-84_060420	**Sampled by**	D. Stockard
Purge Start	09:50	**Gallons Purged**	3.50				
Purge End	10:50			**Replicate/ Code No.**	DUP-03		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:50		200	64.9	0.00	6.92	1.31	169	0.7	15.3	20.8	None	None
10:00	10	200	66.01	0.00	6.92	1.32	187	0.67	15.1	15.5	None	None
10:15	15	200	66.34	0.00	7.06	1.34	116	0.63	15.5	-8.6	None	None
10:20	5	200	66.34	0.00	7.08	1.35	98.3	0.49	15.5	-11.3	None	None
10:25	5	200	66.41	0.00	7.07	1.35	77.1	0.56	15.2	-15.7	None	None
10:30	5	200	66.41	0.00	7.1	1.33	55.4	0.65	15.3	-19.9	None	None
10:35	5	200	66.41	0.00	7.08	1.35	35.1	0.65	15.5	-23.9	None	None
10:40	5	200	66.69	0.00	7.08	1.36	26	0.62	15.7	-29.2	None	None
10:45	5	200	66.75	0.00	7.08	1.35	23.6	0.63	15.4	-30.8	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D and VOCs	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-16-85			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.49	**Total Depth (ft-bmp)**	83.1	**Water Column(ft)**	18	**Gallons in Well**	2.86
MP Elevation		**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	09:50	**Volumes Purged**		**Sample ID**	MW-16-85_060820	**Sampled by**	D. Stockard
Purge Start	08:40	**Gallons Purged**					
Purge End	09:50			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:45		200	65.49	0.00	6.91	1.1	423	1.91	15.6	168.3	None	None
09:30	45	200	71.14	0.00	7.26	1.12	132	0.46	15.7	-27.6	None	None
09:35	5	200	71.14	0.00	7.26	1.11	130	0.46	15.8	-30.3	None	None
09:40	5	200	71.39	0.00	7.25	1.11	125	0.48	15.8	-34.9	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D and VOCs	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-17-86			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.82	**Total Depth (ft-bmp)**	82	**Water Column(ft)**	19	**Gallons in Well**	3.12
MP Elevation		**Pump Intake (ft-bmp)**	79	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	17:45	**Volumes Purged**		**Sample ID**	MW-17-86_060320	**Sampled by**	D. Stockard
Purge Start	16:40	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:40		100	62.82	0.00	6.63	1.73	129	2.21	18.2	64.3	None	None
16:45	5	100	63.05	0.00	6.64	1.75	107	0.54	17.9	20.4	None	None
16:50	5	200	62.95	0.00	6.91	1.78	82.3	0.61	18.4	-34.5	None	None
16:55	5	200	62.95	0.00	6.84	1.78	66.2	0.61	18	-34.2	None	None
17:05	10	200	62.99	0.00	6.82	1.76	93.7	1.18	18.1	-53.7	None	None
17:10	5	200	62.96	0.00	6.81	1.74	108	4.74	19.8	-62.9	None	None
17:35	25	200	62.89	0.00	6.79	0.94	132	2.16	19.9	-59.7	None	None
17:40	5	200	62.89	0.00	6.82	1.77	144	2.12	18.3	-60.3	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D and VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-17-87			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	64.8	**Total Depth (ft-bmp)**	119.34	**Water Column(ft)**	55	**Gallons in Well**	35.45
MP Elevation		**Pump Intake (ft-bmp)**	117	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:45	**Volumes Purged**	0.04	**Sample ID**	MW-17-87_060520	**Sampled by**	Billy J Cobern
Purge Start	10:45	**Gallons Purged**	1.59				
Purge End	11:45			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:45		100	64.8	0.00							Clear	No
10:50	5	100	64.81	0.13	7.34	2.78	43.4	0.65	26.2	-5.8	Clear	No
10:55	5	100	64.81	0.26	7.37	2.74	41.2	3.26	26.1	-52	Clear	No
11:00	5	100	64.81	0.40	7	2.75	37.7	3.82	27.1	-45.9	Clear	No
11:05	5	100	64.81	0.53	6.8	3.07	36.1	3.86	28	-77.2	Clear	No
11:10	5	100	64.81	0.66	6.81	3.35	28.3	3.76	27.7	-92	Clear	No
11:15	5	100	64.81	0.79	6.86	3.49	24.3	3.41	27.3	-111.6	Clear	No
11:20	5	100	64.81	0.92	6.93	3.53	21.2	3.32	26.9	-131.1	Clear	No
11:25	5	100	64.81	1.06	7.05	3.57	17.2	3.16	25.2	-147.8	Clear	No
11:30	5	100	64.81	1.19	7.07	3.58	13.2	3.21	24.8	-152.7	Clear	No
11:35	5	100	64.81	1.32	7.09	3.58	9.94	3.2	14.9	-156.6	Clear	No
11:40	5	100	64.81	1.45	7.1	3.57	9.83	3	24.7	-159.6	Clear	No
11:45	5	100	64.81	1.59	7.11	3.57	9.68	3	24.7	-162.1	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-88			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.98	**Total Depth (ft-bmp)**	14.99	**Water Column(ft)**	10	**Gallons in Well**	1.63
MP Elevation		**Pump Intake (ft-bmp)**	12.49	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:30	**Volumes Purged**		**Sample ID**	MW-18-88_060420	**Sampled by**	Austin Westhuis
Purge Start	14:55	**Gallons Purged**					
Purge End	15:40			**Replicate/ Code No.**	Dup-06_060420		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:00		200	4.98	0.26	5.88	0.52	22.6	0.36	15.4	86.4	Clear	None
15:05	5	200	4.98	0.53	5.61	0.51	13.8	0.29	15.1	32.8	Clear	None
15:10	5	200	4.98	0.79	3.83	0.51	4.92	0.27	15	12.6	Clear	None
15:15	5	200	4.98	1.06	4.21	0.51	2.96	0.26	15	4.6	Clear	None
15:20	5	200	4.98	1.32	4.7	0.51	2.41	0.27	14.8	2.6	Clear	None
15:25	5	200	4.98	1.59	4.73	0.51	2.11	0.27	14.8	2.3	Clear	None
15:30	5	200	4.98	1.85	4.8	0.51	1.64	0.27	14.8	2.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-18-88 (resample for missed parameters)			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.46	**Total Depth (ft-bmp)**	15	**Water Column(ft)**	10	**Gallons in Well**	1.55
MP Elevation		**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:30	**Volumes Purged**		**Sample ID**	MW-18-88_060920	**Sampled by**	Jacob Pisarkiewicz
Purge Start	14:55	**Gallons Purged**					
Purge End	15:25			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:05		200	5.46	0.00	7.03	0.65	10.5	0.28	19.4	38.8	Clear	None
15:10	5	200	5.46	0.00	7	0.64	2.23	0.18	19.4	38.5	Clear	None
15:15	5	200	5.46	0.00	7.03	0.65	0.02	0.15	19.7	33.6	Clear	None
15:20	5	200	5.46	0.00	7.04	0.65	0.02	0.16	19.6	33.3	Clear	None
15:25	5	200	5.46	0.00	7.04	0.65	0.02	0.14	19.7	32.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	40 mL Glass	3	HCL
Metals	250mL HDPE Plastic	1	HNO3
hexavalent chromium	250 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-89			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.99	**Total Depth (ft-bmp)**	15.6	**Water Column(ft)**	9	**Gallons in Well**	1.4
MP Elevation		**Pump Intake (ft-bmp)**	14	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:50	**Volumes Purged**		**Sample ID**	MW-18-89_060820	**Sampled by**	Jacob Pisarkiewicz
Purge Start	14:10	**Gallons Purged**					
Purge End	14:45			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:20		200	8.25	0.00	7.78	0.67	0.02	0.36	17.6	63.6	Clear	None
14:25	5	200	10.1	0.00	7.79	0.59	0.02	0.24	18.2	40.5	Clear	None
14:30	5	200	11.1	0.00	7.82	0.6	1.21	0.32	18.1	37.9	Clear	None
14:35	5	200	11.3	0.00	7.83	0.59	3.23	0.63	18.5	44.3	Clear	None
14:40	5	200	11.3	0.00	7.86	0.6	1.23	0.67	18.1	41.4	Clear	None
14:45	5	200	11.3	0.00	7.86	0.6	0.22	0.66	18.1	41.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-90			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Steel
Static Water Level (ft-bmp)	9.52	**Total Depth (ft-bmp)**	23.2	**Water Column(ft)**	14	**Gallons in Well**	2.22
MP Elevation		**Pump Intake (ft-bmp)**	20	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:10	**Volumes Purged**		**Sample ID**	MW-18-90	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:05		250	9.6	0.00	12.07	1.9	6.23	0.96	15.5	-8.5	Clear	None
14:10	5	250	9.6	0.00	12.12	1.95	8.08	0.29	14.7	-46.9	Clear	None
14:15	5	250	9.6	0.00	12.11	2.02	32	0.16	14.8	-82.6	Clear	None
14:20	5	250	9.6	0.00	12.12	1.96	35.6	0.16	14.6	-90.3	Clear	None
14:25	5	250	9.6	0.00	12.15	2.1	10.2	0.12	14.5	-118.1	Clear	None
14:30	5	250	9.6	0.00	12.15	2.11	45.2	0.12	14.7	-120.7	Clear	None
14:35	5	250	9.6	0.00	12.21	2.18	35.4	0.11	14.8	-141.7	Clear	None
14:40	5	250	9.6	0.00	12.22	2.19	49.2	0.11	14.8	-147.2	Clear	None
14:45	5	250	9.6	0.00	12.24	2.24	8.25	0.1	14.8	-162.3	Clear	None
14:50	5	250	9.6	0.00	12.25	2.25	8	0.11	14.6	-163.5	Clear	None
14:55	5	250	9.6	0.00	12.27	2.26	5.24	0.1	14.9	-178.9	Clear	None
15:00	5	250	9.6	0.00	12.28	2.24	5.23	0.11	14.8	-181.6	Clear	None
15:05	5	250	9.6	0.00	12.3	2.3	4.18	0.1	14.3	-185.2	Clear	None
15:10	5	250	9.6	0.00	12.3	2.3	4.14	0.16	14	-192.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-18-91			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Steel
Static Water Level (ft-bmp)	5.78	**Total Depth (ft-bmp)**	15	**Water Column(ft)**	9	**Gallons in Well**	1.5
MP Elevation		**Pump Intake (ft-bmp)**	13	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:05	**Volumes Purged**		**Sample ID**	MW-18-91	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:20		250	5.78	0.00	7.77	0.76	21.1	0.33	16.2	-173.4	Clear	None
11:25	5	250	7.3	0.00	7.74	0.76	28.7	0.22	16.3	-182.8	Clear	None
11:30	5	250	7.75	0.00	7.8	0.75	20.8	0.18	16.4	-192.1	Clear	None
11:35	5	250	8	0.00	7.83	0.74	11.3	0.17	16.4	-195.5	Clear	None
11:40	5	250	8.2	0.00	7.83	0.75	9.84	0.14	16.7	-197.5	Clear	None
11:45	5	250	8.4	0.00	7.83	0.74	9.39	0.17	16.7	-197.1	Clear	None
11:50	5	250	8.6	0.00	7.83	0.74	9	0.18	16.7	-198.6	Clear	None
11:55	5	250	8.8	0.00	7.84	0.74	7.26	0.16	16.4	-197.4	Clear	None
12:00	5	250	9	0.00	7.85	0.74	7.2	0.16	16.5	-196.7	Clear	None
12:05	5	250	9	0.00	7.84	0.74	7.7	0.16	16.4	-196.4	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	125 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-92			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 84F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.74	**Total Depth (ft-bmp)**	30.09	**Water Column(ft)**	17	**Gallons in Well**	2.82
MP Elevation		**Pump Intake (ft-bmp)**	27.59	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:55	**Volumes Purged**		**Sample ID**	MW-18-92_060320	**Sampled by**	Austin Westhuis
Purge Start	12:25	**Gallons Purged**					
Purge End	14:00			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:30		200	12.74	0.26	6.84	1.08	24.2	0.34	12.6	15.7	Clear	None
13:35	5	200	12.74	0.53	6.86	1.08	12.6	0.37	12.5	0.4	Clear	None
13:40	5	200	12.74	0.79	6.86	1.08	4.93	0.38	12.6	-11.3	Clear	None
13:45	5	200	12.74	1.06	6.86	1.07	2.74	0.35	12.4	-20.1	Clear	None
13:50	5	200	12.74	1.32	6.86	1.07	2.12	0.34	12.3	-22.1	Clear	None
13:55	5	200	12.74	1.59	6.85	1.07	1.8	0.35	12.3	-23.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-93			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	49.94	**Total Depth (ft-bmp)**	84.9	**Water Column(ft)**	35	**Gallons in Well**	5.68
MP Elevation		**Pump Intake (ft-bmp)**	82.4	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:45	**Volumes Purged**		**Sample ID**	MW-18-93_060520	**Sampled by**	Austin Westhuis
Purge Start	12:10	**Gallons Purged**					
Purge End	12:50			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:15		200	49.94	0.26	7.31	0.492	42.8	1.75	13.8	-115.1	Clear	None
12:20	5	200	49.94	0.53	7.28	0.491	23.6	1.89	13.7	-114.3	Clear	None
12:25	5	200	49.94	0.79	7.27	0.493	14.2	1.97	13.9	-113.1	Clear	None
12:30	5	200	49.94	1.06	7.27	0.49	8.94	2.1	13.9	-112.9	Clear	None
12:35	5	200	49.94	1.32	7.26	0.495	4.32	2.08	14.1	-112.1	Clear	None
12:40	5	200	49.94	1.59	7.26	0.496	3.7	2.04	14.1	-112.2	Clear	None
12:45	5	200	49.94	1.85	7.26	0.495	3.34	2.03	14	-112.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-94			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	54.59	**Total Depth (ft-bmp)**	79.62	**Water Column(ft)**	25	**Gallons in Well**	4.07
MP Elevation		**Pump Intake (ft-bmp)**	77.12	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:40	**Volumes Purged**		**Sample ID**	MW-18-94_060820	**Sampled by**	Austin Westhuis
Purge Start	13:00	**Gallons Purged**					
Purge End	13:45			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:05		200	54.59	0.26	6.97	3.76	199	0.02	14.6	-87.5	Clear	None
13:10	5	200	54.59	0.53	6.99	3.74	95.3	0.01	14.7	-87.9	Clear	None
13:15	5	200	54.59	0.79	6.98	3.76	31.6	0.01	14.5	-82.3	Clear	None
13:20	5	200	54.59	1.06	6.97	3.69	14.8	0.01	14.4	-86.1	Clear	None
13:25	5	200	54.59	1.32	6.96	3.77	6.84	0.01	14.3	-87.3	Clear	None
13:30	5	200	54.59	1.59	6.97	3.66	2.94	0.01	14.2	-87.4	Clear	None
13:35	5	200	54.59	1.85	6.97	3.66	2.8	0.01	14.2	-87.7	Clear	None
13:40	5	200	54.59	2.11	6.97	3.66	1.97	0.01	14.1	-87.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-95			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Steel
Static Water Level (ft-bmp)	6.83	**Total Depth (ft-bmp)**	12.42	**Water Column(ft)**	6	**Gallons in Well**	0.91
MP Elevation		**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:40	**Volumes Purged**		**Sample ID**	MW-18-95	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:50		250	6.83	0.00	7.72	0.55	52.2	1.25	15.6	73	Clear	None
12:55	5	250	6.83	0.00	7.73	0.54	42.3	0.89	15.5	61	Clear	None
13:00	5	250	6.83	0.00	7.74	0.53	23.7	1.08	15.5	38	Clear	None
13:05	5	250	6.83	0.00	7.75	0.52	9.54	1.42	15.3	24.8	Clear	None
13:10	5	250	6.83	0.00	7.74	0.52	8.56	1.35	15.2	21.8	Clear	None
13:15	5	250	6.83	0.00	7.71	0.53	2.99	1.17	15.1	15	Clear	None
13:20	5	250	6.83	0.00	7.65	0.54	4	1.1	15.5	6.8	Clear	None
13:25	5	250	6.83	0.00	7.64	0.54	4	1.08	15.5	6	Clear	None
13:30	5	250	6.83	0.00	7.61	0.54	1.54	1.06	15.8	2.3	Clear	None
13:35	5	250	6.83	0.00	7.59	0.54	1.5	1.03	15.6	0.9	Clear	None
13:40	5	250	6.83	0.00	7.59	0.54	1.53	1.03	15.5	-0.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-96			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.26	**Total Depth (ft-bmp)**	14.81	**Water Column(ft)**	2	**Gallons in Well**	0.25
MP Elevation		**Pump Intake (ft-bmp)**	14.31	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	17:20	**Volumes Purged**		**Sample ID**	MW-18-96_060220	**Sampled by**	Austin Westhuis
Purge Start	16:35	**Gallons Purged**					
Purge End	17:00			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
16:40		200	13.93	0.26	7.41	0.462	6.38	5.59	14.8	49.3	Clear	None
16:45	5	200	14	0.53	7.32	0.51	2.96	5.13	15.5	49.1	Clear	None
16:50	5	200	14.24	0.79	7.3	0.52	2.12	5.02	15.6	50.4	Clear	None
16:55	5	200	14.5	1.06	7.27	0.55	2.01	5.4	16.1	54.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments: Well purged dry at 1700. Wait for recharge before sampling.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-97			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.97	**Total Depth (ft-bmp)**	91.7	**Water Column(ft)**	34	**Gallons in Well**	5.48
MP Elevation		**Pump Intake (ft-bmp)**	88.2	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:15	**Volumes Purged**		**Sample ID**	MW-18-97_060820	**Sampled by**	Austin Westhuis
Purge Start	10:40	**Gallons Purged**					
Purge End	12:20			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:45		200	57.97	0.26	6.71	1.49	16.5	5.29	15.4	-57.3	Clear	None
11:50	5	200	57.97	0.53	6.79	1.46	8.92	0.89	14.3	-67.1	Clear	None
11:55	5	200	57.97	0.79	6.78	1.48	3.17	0.45	14.3	-69	Clear	None
12:00	5	200	57.97	1.06	6.76	1.51	2.82	0.38	14.3	-69.2	Clear	None
12:05	5	200	57.97	1.32	6.76	1.51	2.02	0.35	14.3	-67.2	Clear	None
12:10	5	200	57.97	1.59	6.76	1.51	1.64	0.33	14.3	-66.2	Clear	None
12:15	5	200	57.97	1.85	6.76	1.51	1.41	0.32	14.2	-65.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-18-98			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 84F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.63	**Total Depth (ft-bmp)**	14.9	**Water Column(ft)**	9	**Gallons in Well**	1.51
MP Elevation		**Pump Intake (ft-bmp)**	12.4	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:55	**Volumes Purged**		**Sample ID**	MW-18-98_060320	**Sampled by**	Austin Westhuis
Purge Start	09:25	**Gallons Purged**					
Purge End	10:00			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:30		200	5.63	0.26	6.86	0.54	4.12	0.64	14	-73.6	Clear	None
09:35	5	200	7.94	0.53	6.91	0.53	3.61	0.36	13.8	-80.2	Clear	None
09:40	5	200	8.14	0.79	6.94	0.53	2.59	0.33	14.2	-84.6	Clear	None
09:45	5	200	8.39	1.06	6.97	0.52	2.4	0.27	14.1	-85.6	Clear	None
09:50	5	200	8.49	1.32	7	0.53	2.25	0.29	14	-78.8	Clear	None
09:55	5	200	8.49	1.59	6.99	0.53	2.02	0.29	13.9	-76.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-99			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.12	**Total Depth (ft-bmp)**	16.88	**Water Column(ft)**	13	**Gallons in Well**	2.07
MP Elevation		**Pump Intake (ft-bmp)**	14.38	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	16:00	**Volumes Purged**		**Sample ID**	MW-18-99_060220	**Sampled by**	Austin Westhuis
Purge Start	15:25	**Gallons Purged**					
Purge End	16:05			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:30		200	4.12	0.26	7.83	1.72	21.6	2.79	14.7	-114.8	Clear	None
15:35	5	200	5.75	0.53	7.78	1.78	14.3	2.46	16.5	-126	Clear	None
15:40	5	200	6.02	0.79	7.79	1.79	7.51	2.48	16.5	-128.4	Clear	None
15:45	5	200	6.12	1.06	7.79	1.77	3.48	2.45	16.2	-130.5	Clear	None
15:50	5	200	6.15	1.32	7.82	1.74	2.87	2.81	15.9	-129.7	Clear	None
15:55	5	200	6.15	1.59	7.8	1.74	2.92	2.7	15.8	-125.4	Clear	None
16:00	5	200	6.15	1.85	7.8	1.75	2.56	2.67	15.8	-124.1	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-100			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 84F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.69	**Total Depth (ft-bmp)**	15.85	**Water Column(ft)**	6	**Gallons in Well**	1
MP Elevation		**Pump Intake (ft-bmp)**	13.55	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:00	**Volumes Purged**		**Sample ID**	MW-18-100_060320	**Sampled by**	Austin Westhuis
Purge Start	10:35	**Gallons Purged**					
Purge End	11:05			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:40		200	10.33	0.26	7.55	0.438	3.02	4.71	13.9	30.8	Clear	None
10:45	5	200	10.33	0.53	7.57	0.424	2.61	4.88	13.9	31.3	Clear	None
10:50	5	200	10.33	0.79	7.58	0.396	2.4	5.3	13.9	37.4	Clear	None
10:55	5	200	10.33	1.06	7.59	0.389	2.14	5.31	13.8	37.5	Clear	None
11:00	5	200	10.33	1.32	7.6	0.386	1.78	5.23	13.8	38	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-101			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.71	**Total Depth (ft-bmp)**	87.45	**Water Column(ft)**	28	**Gallons in Well**	4.51
MP Elevation		**Pump Intake (ft-bmp)**	84.95	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:10	**Volumes Purged**		**Sample ID**	MW-18-101_060520	**Sampled by**	Austin Westhuis
Purge Start	13:30	**Gallons Purged**					
Purge End	14:15			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:35		200	59.71	0.26	6.88	1.71	15.6	2.91	14.1	-127.9	Clear	None
13:40	5	200	59.71	0.53	6.89	1.85	10.3	2.22	13.9	-129.3	Clear	None
13:45	5	200	59.71	0.79	6.87	1.85	7.8	1.8	13.5	-123.9	Clear	None
13:50	5	200	59.71	1.06	6.87	1.84	3.31	1.63	13.5	-124.3	Clear	None
13:55	5	200	59.71	1.32	6.86	1.65	2.61	1.63	13.5	-126.4	Clear	None
14:00	5	200	59.71	1.59	6.85	1.56	2.2	1.47	13.5	-123.6	Clear	None
14:05	5	200	59.71	1.85	6.85	1.52	1.8	1.43	13.3	-121.4	Clear	None
14:10	5	200	59.71	1.85	6.85	1.52	1.56	1.37	13.3	-120.7	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-102			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.31	**Total Depth (ft-bmp)**	14.69	**Water Column(ft)**	7	**Gallons in Well**	1.2
MP Elevation		**Pump Intake (ft-bmp)**	12.19	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:25	**Volumes Purged**		**Sample ID**	MW-18-102_060220	**Sampled by**	Austin Westhuis
Purge Start	10:35	**Gallons Purged**					
Purge End	11:30			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:40		200	7.31	0.26	6.85	0.5	31.1	4.95	11.2	178.5	Clear	None
10:45	5	200	7.31	0.53	6.91	0.489	14.2	4.38	11.1	144.9	Clear	None
10:50	5	200	7.31	0.79	6.91	0.489	8.51	3.89	11.2	142.1	Clear	None
10:55	5	200	7.31	1.06	6.92	0.492	4.33	3.44	11.6	102.5	Clear	None
11:00	5	200	7.31	1.32	6.97	0.49	2.38	3.27	11.3	95.1	Clear	None
11:05	5	200	7.31	1.59	6.93	0.49	2.03	3.32	11.3	88.4	Clear	None
11:10	5	200	7.31	1.85	6.96	0.491	1.8	2.88	11.4	73.1	Clear	None
11:15	5	200	7.31	2.11	6.96	0.491	1.71	2.58	11.3	72.1	Clear	None
11:20	5	200	7.31	2.38	6.96	0.492	1.63	2.54	11.3	70.1	Clear	None
11:25	5	200	7.31	2.64	6.94	0.49	1.41	2.5	11.3	69.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3 - off site park.
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-103			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	2.07	**Total Depth (ft-bmp)**	10.67	**Water Column(ft)**	9	**Gallons in Well**	1.4
MP Elevation		**Pump Intake (ft-bmp)**	8.17	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:10	**Volumes Purged**		**Sample ID**	MW-18-103_060420	**Sampled by**	Austin Westhuis
Purge Start	11:35	**Gallons Purged**					
Purge End	12:15			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:40		200	2.07	0.26	7.11	0.51	30.1	1.81	13	24.7	Clear	None
11:45	5	200	2.07	0.53	7.07	0.488	12.1	1.64	12.2	33.2	Clear	None
11:50	5	200	2.07	0.79	7.04	0.484	4.9	1.68	12.1	38.9	Clear	None
11:55	5	200	2.07	1.06	6.99	0.481	2.91	1.92	12.1	46.8	Clear	None
12:00	5	200	2.07	1.32	6.97	0.479	2.44	1.76	12	50.4	Clear	None
12:05	5	200	2.07	1.59	6.96	0.479	2.19	1.71	12	51.7	Clear	None
12:10	5	200	2.07	1.85	6.96	0.478	1.81	1.68	12	52.5	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3 - off site park
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-104			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.55	**Total Depth (ft-bmp)**	9.46	**Water Column(ft)**	8	**Gallons in Well**	1.29
MP Elevation		**Pump Intake (ft-bmp)**	6.96	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:40	**Volumes Purged**		**Sample ID**	MW-18-104_060220	**Sampled by**	Austin Westhuis
Purge Start	12:05	**Gallons Purged**					
Purge End	12:45			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:10		200	1.55	0.26	7.21	0.481	12.6	0.3	13.1	34.2	Clear	None
12:15	5	200	1.55	0.53	7.18	0.479	6.14	0.32	13.3	-11.7	Clear	None
12:20	5	200	1.55	0.79	7.15	0.48	4.11	0.35	13.4	-12	Clear	None
12:25	5	200	1.55	1.06	7.18	0.483	2.81	0.39	13.5	-11.8	Clear	None
12:30	5	200	1.55	1.32	7.1	0.488	2.09	0.5	13.8	-9.3	Clear	None
12:35	5	200	1.55	1.59	7.08	0.486	1.66	0.49	13.5	-7.9	Clear	None
12:40	5	200	1.55	1.85	7.08	0.486	1.61	0.5	13.5	-7.8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3 - off site park.
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-105			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.9	**Total Depth (ft-bmp)**	11.17	**Water Column(ft)**	10	**Gallons in Well**	1.67
MP Elevation		**Pump Intake (ft-bmp)**	8.67	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:00	**Volumes Purged**		**Sample ID**	MW-18-105_060420	**Sampled by**	Austin Westhuis
Purge Start	12:30	**Gallons Purged**					
Purge End	13:10			**Replicate/ Code No.**	Dup-07		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:35		200	0.9	0.26	7.11	0.481	1.91	0.27	12	15.3	Clear	None
12:40	5	200	0.9	0.53	7.14	0.468	1.54	0.21	12.1	-4.2	Clear	None
12:45	5	200	0.9	0.79	7.15	0.463	1.33	0.2	12	-31.9	Clear	None
12:50	5	200	0.9	1.06	7.15	0.461	1.3	0.19	12	-40.1	Clear	None
12:55	5	200	0.9	1.32	7.15	0.46	1.17	0.18	12	-41.2	Clear	None
13:00	5	200	0.9	1.59	7.15	0.458	1.09	0.18	12	-43.6	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3 - off site park
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-18-106			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	2.79	**Total Depth (ft-bmp)**	9.52	**Water Column(ft)**	7	**Gallons in Well**	1.09
MP Elevation		**Pump Intake (ft-bmp)**	7.02	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:45	**Volumes Purged**		**Sample ID**	MW-18-106_060220	**Sampled by**	Austin Westhuis
Purge Start	13:15	**Gallons Purged**					
Purge End	13:50			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:20		200	2.79	0.26	7.01	0.54	14.7	0.71	13.2	-5.7	Clear	None
13:25	5	200	2.79	0.53	7.01	0.54	9.41	0.72	13	-7.5	Clear	None
13:30	5	200	2.79	0.79	7.01	0.54	4.82	0.7	13.3	-4.3	Clear	None
13:35	5	200	2.79	1.06	7	0.52	3.8	0.67	13.2	-0.1	Clear	None
13:40	5	200	2.79	1.32	6.99	0.52	3.1	0.74	13.3	-0.3	Clear	None
13:45	5	200	2.79	1.59	6.99	0.52	2.97	0.72	13.3	-0.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3 - off site park.
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-19			**Date**	6/11/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	45.84	**Total Depth (ft-bmp)**	62.21	**Water Column(ft)**	16	**Gallons in Well**	2.66
MP Elevation		**Pump Intake (ft-bmp)**	59.71	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:45	**Volumes Purged**		**Sample ID**	MW-19_061120	**Sampled by**	Austin Westhuis
Purge Start	10:15	**Gallons Purged**					
Purge End	10:55			**Replicate/ Code No.**	Dup-08_061120		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:20		200	45.84	0.26	7.56	0.346	44.9	2.69	16.1	110.9	Clear	None
10:25	5	200	45.84	0.53	7.5	0.345	26.4	2.11	16.1	116.9	Clear	None
10:30	5	200	45.84	0.79	7.46	0.345	13.9	2.02	16.1	120.2	Clear	None
10:35	5	200	45.84	1.06	7.42	0.344	7.33	1.97	16.1	122.9	Clear	None
10:40	5	200	45.84	1.32	7.41	0.344	6.12	1.94	16	124.9	Clear	None
10:45	5	200	45.84	1.59	7.41	0.344	5.98	1.9	16	125.6	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-107			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 84F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.69	**Total Depth (ft-bmp)**	29.82	**Water Column(ft)**	15	**Gallons in Well**	2.46
MP Elevation		**Pump Intake (ft-bmp)**	27.32	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:55	**Volumes Purged**		**Sample ID**	MW-19-107_060320	**Sampled by**	Austin Westhuis
Purge Start	14:25	**Gallons Purged**					
Purge End	15:00			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:30		200	14.69	0.26	6.74	0.88	4.63	1.04	11.9	-50.2	Clear	None
14:35	5	200	14.69	0.53	6.75	0.88	2.18	0.54	12	-62.7	Clear	None
14:40	5	200	14.69	0.79	6.73	0.88	1.82	0.48	12	-70	Clear	None
14:45	5	200	14.69	1.06	6.71	0.88	1.82	0.46	12.2	-73.1	Clear	None
14:50	5	200	14.69	1.32	6.7	0.88	1.41	0.46	12.2	-74	Clear	None
14:55	5	200	14.69	1.59	6.7	0.88	1.21	0.45	12.2	-74.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-108			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 84F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.91	**Total Depth (ft-bmp)**	30.05	**Water Column(ft)**	17	**Gallons in Well**	2.79
MP Elevation		**Pump Intake (ft-bmp)**	27.55	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:00	**Volumes Purged**		**Sample ID**	MW-19-108_060320	**Sampled by**	Austin Westhuis
Purge Start	12:20	**Gallons Purged**					
Purge End	13:05			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:25		200	12.91	0.26	6.5	1.19	870	2.53	12.1	27.1	Clear	None
12:30	5	200	12.91	0.53	6.65	1.18	492	0.79	12	-9.3	Clear	None
12:35	5	200	12.91	0.79	6.65	1.18	410	0.8	12.1	-10.2	Clear	None
12:40	5	200	12.91	1.06	6.65	1.17	156	0.74	11.7	-11.5	Clear	None
12:45	5	200	12.91	1.32	6.65	1.17	121	0.74	11.7	-11.7	Clear	None
12:50	5	200	12.91	1.59	6.64	1.17	105	0.72	11.6	-11.9	Clear	None
12:55	5	200	12.91	1.85	6.63	1.17	75.8	0.72	11.7	-11.7	Clear	None
13:00	5	200	12.91	1.85	6.63	1.17	42.1	0.72	11.7	-11.7	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-111			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 84F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	18.98	**Total Depth (ft-bmp)**	27.4	**Water Column(ft)**	8	**Gallons in Well**	1.37
MP Elevation		**Pump Intake (ft-bmp)**	24.9	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	16:10	**Volumes Purged**		**Sample ID**	MW-19-111_060320	**Sampled by**	Austin Westhuis
Purge Start	15:45	**Gallons Purged**					
Purge End	16:15			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:50		200	18.98	0.26	6.65	1.27	4.92	0.87	12.1	71.6	Clear	None
15:55	5	200	18.98	0.53	6.7	1.25	2.51	0.97	11.7	40.9	Clear	None
16:00	5	200	18.98	0.79	6.7	1.25	2.03	1.16	11.7	37.6	Clear	None
16:05	5	200	18.98	1.06	6.68	1.25	1.83	1.17	11.7	35.6	Clear	None
16:10	5	200	18.98	1.32	6.68	1.25	1.5	1.17	11.7	33.8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-112			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.55	**Total Depth (ft-bmp)**	17.55	**Water Column(ft)**	12	**Gallons in Well**	1.95
MP Elevation		**Pump Intake (ft-bmp)**	15.05	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:10	**Volumes Purged**		**Sample ID**	MW-19-112_060420	**Sampled by**	Austin Westhuis
Purge Start	10:35	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:40		200	5.55	0.26	6.71	5.33	10.6	1.01	15.2	-58.4	Clear	None
10:45	5	200	7.1	0.53	6.33	5.45	4.47	1.03	16.4	-64.3	Clear	None
10:50	5	200	7.1	0.79	6.35	5.47	2.08	1.11	16.4	-67.1	Clear	None
10:55	5	200	7.1	1.06	6.37	5.48	1.7	1.28	16	-66.8	Clear	None
11:00	5	200	7.1	1.32	6.38	5.35	1.66	1.17	16.1	-66.5	Clear	None
11:05	5	200	7.1	1.59	6.38	5.35	1.41	1.15	16	-65.6	Clear	None
11:10	5	200	7.1	1.85	6.38	5.34	1.22	1.13	16	-65.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-19-113			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	23.52	**Total Depth (ft-bmp)**	24.57	**Water Column(ft)**	1	**Gallons in Well**	0.17
MP Elevation		**Pump Intake (ft-bmp)**	24.32	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:45	**Volumes Purged**		**Sample ID**	MW-19-113_060520	**Sampled by**	Austin Westhuis
Purge Start	10:10	**Gallons Purged**					
Purge End	10:21			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:15		200	23.87	0.26	6.77	0.89	12.6	5.63	14.2	137.5	Clear	None
10:20	5	200	24.3	0.53	7.17	0.74	21.5	5.5	14.7	49.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments: Well purges dry at 1020. This well has historically purged dry quickly and doesn't recharge very fast. A. Westhuis will collect a grab sample first thing tomorrow morning.

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-114			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.97	**Total Depth (ft-bmp)**	10.75	**Water Column(ft)**	9	**Gallons in Well**	1.43
MP Elevation		**Pump Intake (ft-bmp)**	8.25	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:20	**Volumes Purged**		**Sample ID**	MW-19-114_060420	**Sampled by**	Austin Westhuis
Purge Start	13:40	**Gallons Purged**					
Purge End	14:25			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:45		200	1.97	0.26	6.97	0.435	2.8	0.24	12.2	29.3	Clear	None
13:50	5	200	1.97	0.53	7.15	0.439	2.06	0.23	12.5	17.7	Clear	None
13:55	5	200	1.97	0.79	7.2	0.438	1.7	0.22	12.5	10.5	Clear	None
14:00	5	200	1.97	1.06	7.2	0.436	1.4	0.29	12.5	9.2	Clear	None
14:05	5	200	1.97	1.32	7.2	0.432	1.35	0.28	12	8.1	Clear	None
14:10	5	200	1.97	1.59	7.19	0.435	1.19	0.24	12	8	Clear	None
14:15	5	200	1.97	1.85	7.17	0.435	1.1	0.22	12	8	Clear	None
14:20	5	200	1.97	2.11	7.17	0.435	1.01	0.22	11.9	8	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3 - off site park	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-115			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 60s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.45	**Total Depth (ft-bmp)**	81	**Water Column(ft)**	25	**Gallons in Well**	3.99
MP Elevation		**Pump Intake (ft-bmp)**	78	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	12:30	**Volumes Purged**		**Sample ID**	MW-19-115	**Sampled by**	D. Stockard
Purge Start	11:44	**Gallons Purged**					
Purge End	12:30			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:45		200	56.45	0.00	6.81	2.86	292	0.43	15.8	230.2	None	None
11:50	5	200	58.74	0.00	6.83	2.86	543	0.38	15.7	224.2	None	None
11:55	5	200	59.09	0.00	6.86	2.84	323	0.29	15.9	209.4	None	None
12:00	5	200	59.74	0.00	6.9	2.83	120	0.25	15.6	191.6	None	None
12:05	5	200	60.5	0.00	6.93	2.83	46.5	0.26	15.9	171.5	None	None
12:10	5	200	60.85	0.00	6.94	2.83	45.8	0.24	15.6	179.3	None	None
12:15	5	200	61.72	0.00	6.94	2.84	24.4	0.23	15.8	176.3	None	None
12:20	5	200	62.05	0.00	6.94	2.85	17.1	0.25	15.8	169.5	None	None
12:25	5	200	62.21	0.00	6.94	2.84	16	0.25	15.7	169.4	None	None
12:30	5	200	62.45	0.00	6.94	2.85	16	0.24	15.6	170.5	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-116			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.99	**Total Depth (ft-bmp)**	75	**Water Column(ft)**	18	**Gallons in Well**	2.93
MP Elevation		**Pump Intake (ft-bmp)**	78	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:05	**Volumes Purged**		**Sample ID**	MW-19-116_060320	**Sampled by**	D. Stockard
Purge Start	13:20	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:20		200	56.99	0.00	6.78	1.9	119	1.15	17.3	79.4	None	None
13:25	5	200	57.19	0.00	6.76	1.89	63	0.54	17.4	56.5	None	None
13:30	5	200	57.19	0.00	6.8	1.9	41	0.27	16.6	37.4	None	None
13:35	5	200	57.27	0.00		1.91	35.1	0.28	16.9	15.4	None	None
13:40	5	200	57.27	0.00	6.87	1.94	22.4	0.25	16.4	-7.8	None	None
13:45	5	200	57.39	0.00	6.88	1.95	5.2	0.19	16.1	-20.6	None	None
13:50	5	200	57.39	0.00	6.89	1.95	3.58	0.18	16.1	-29.2	None	None
13:55	5	200	57.39	0.00	6.93	1.95	1.87	0.19	16.1	-35.4	None	None
14:00	5	200	57.41	0.00	6.96	1.94	2.5	0.18	16.3	-39	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-117			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.35	**Total Depth (ft-bmp)**	63	**Water Column(ft)**	4	**Gallons in Well**	0.59
MP Elevation		**Pump Intake (ft-bmp)**	62	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	15:40	**Volumes Purged**	2.54	**Sample ID**	MW-19-117_060320	**Sampled by**	D. Stockard
Purge Start	14:35	**Gallons Purged**	1.50				
Purge End	15:39			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:40		100	59.35	0.00	6.82	1.05	299	0.45	17.2	-9.8	None	None
14:45	5	100	60.09	0.00	6.86	1.04	181	0.41	17.7	-69.5	None	None
14:50	5	100	60.32	0.00	6.87	1.04	102	0.31	17.6	-81.7	None	None
14:55	5	100	61	0.00	6.98	1.04	75	0.33	18	-90.7	None	None
15:05	10	100	61	0.00	7.04	1.06	187	0.2	19	-106.4	None	None
15:15	10	100	61	0.00	7.15	1.05	162	0.3	19.9	-122.6	None	None
15:25	10	100	61	0.00	7.09	1.02	135	0.26	21.5	-128.8	None	None
15:35	10	100	61	0.00	7.15	1.06	117	0.3	21.5	-133.7	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-118D			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.44	**Total Depth (ft-bmp)**	193	**Water Column(ft)**	127	**Gallons in Well**	20.56
MP Elevation		**Pump Intake (ft-bmp)**	190.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**	0.04	**Sample ID**	MW-19-118D_060520	**Sampled by**	Billy J Cobern
Purge Start	12:15	**Gallons Purged**	0.92				
Purge End	12:50			**Replicate/ Code No.**	DUP-06_060520		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:15		100	66.44	0.00							Clear	No
12:20	5	100	66.45	0.13	7.19	1.7	36.7	4.9	18.2	48.2	Clear	No
12:25	5	100	66.45	0.26	7.19	1.69	25.2	4.79	17.3	42.3	Clear	No
12:30	5	100	66.45	0.40	7.19	1.68	18.4	4.37	18.2	38.6	Clear	No
12:35	5	100	66.45	0.53	7.2	1.68	13.1	4.27	18.1	33	Clear	No
12:40	5	100	66.45	0.66	7.2	1.68	9.71	4.3	18.1	31.9	Clear	No
12:45	5	100	66.45	0.79	7.2	1.68	9.41	4.22	18.3	30.6	Clear	No
12:50	5	100	66.45	0.92	7.2	1.68	9.03	4.23	18.5	29.7	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-118S			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.4	**Total Depth (ft-bmp)**	163	**Water Column(ft)**	97	**Gallons in Well**	15.7
MP Elevation		**Pump Intake (ft-bmp)**	160.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:40	**Volumes Purged**	0.05	**Sample ID**	MW-19-118S	**Sampled by**	Billy J Cobern
Purge Start	13:10	**Gallons Purged**	0.79				
Purge End	13:40			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:10		100	66.4	0.00							Clear	No
13:15	5	100	66.41	0.13	6.94	2.22	32.1	6.16	27.2	-74.1	Clear	No
13:20	5	100	66.41	0.26	6.89	2.26	21.4	6.03	23.5	-78.8	Clear	No
13:25	5	100	66.41	0.40	6.92	2.25	13.6	5.87	22.9	-86.4	Clear	No
13:30	5	100	66.41	0.53	6.94	2.25	9.21	5.42	22.2	-94.6	Clear	No
13:35	5	100	66.41	0.66	6.95	2.26	8.91	5.41	21.6	-96	Clear	No
13:40	5	100	66.41	0.79	6.95	2.26	8.81	5.44	21.6	-96.9	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-119D			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	74.84	**Total Depth (ft-bmp)**	199	**Water Column(ft)**	124	**Gallons in Well**	20.17
MP Elevation		**Pump Intake (ft-bmp)**	196.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:25	**Volumes Purged**	0.06	**Sample ID**	MW-19-119D_060320	**Sampled by**	Billy J Cobern
Purge Start	11:40	**Gallons Purged**	1.19				
Purge End	12:25			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:40		100	74.84	0.00							Clear	No
11:45	5	100	74.96	0.13	7.1	1.08	27.3	6.67	20.6	47.6	Clear	No
11:50	5	100	74.96	0.26	7.11	1.08	22.1	6.41	20.9	43.1	Clear	No
11:55	5	100	74.96	0.40	7.11	1.08	18.2	6.48	20.8	38.9	Clear	No
12:00	5	100	74.96	0.53	7.11	1.08	18.4	6.52	20.8	34.3	Clear	No
12:05	5	100	74.96	0.66	7.1	1.08	14.4	6.32	20.8	33.8	Clear	No
12:10	5	100	74.96	0.79	7.11	1.08	12	6.38	20.7	32.2	Clear	No
12:15	5	100	74.96	0.92	7.11	1.08	9.82	6.32	20.8	30.7	Clear	No
12:20	5	100	74.96	1.06	7.11	1.08	9.42	6.24	20.8	30.1	Clear	No
12:25	5	100	74.96	1.19	7.11	1.08	9.31	6.29	20.7	29.1	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
Low Level 1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-119S			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.85	**Total Depth (ft-bmp)**	163	**Water Column(ft)**	100	**Gallons in Well**	16.27
MP Elevation		**Pump Intake (ft-bmp)**	160.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:40	**Volumes Purged**	0.08	**Sample ID**	MW-19-119S_060320	**Sampled by**	Billy J Cobern
Purge Start	12:50	**Gallons Purged**	1.32				
Purge End	13:40			**Replicate/ Code No.**	DUP-09_060320		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:50		100	62.85	0.00							Clear	No
12:55	5	100	62.86	0.13	7.13	1.25	18.8	1.81	20.6	-29.2	Clear	No
13:00	5	100	62.86	0.26	7.13	1.24	20.2	1.51	20.9	-37.9	Clear	No
13:05	5	100	62.86	0.40	7.13	1.24	17.3	1.26	21.1	-45.5	Clear	No
13:10	5	100	62.86	0.53	7.13	1.24	14.2	1.18	20.8	-47.4	Clear	No
13:15	5	100	62.86	0.66	7.13	1.24	12.8	1.1	21.3	-48.6	Clear	No
13:20	5	100	62.86	0.79	7.13	1.24	11.2	1.05	21.6	-49.6	Clear	No
13:25	5	100	62.86	0.92	7.13	1.24	10.1	1.05	21.5	-49.9	Clear	No
13:30	5	100	62.86	1.06	7.12	1.24	9.78	1	21.6	-49.9	Clear	No
13:35	5	100	62.86	1.19	7.12	1.25	9.71	1.03	21.3	-50.1	Clear	No
13:40	5	100	62.86	1.32	7.12	1.24	9.61	1.01	21.4	-50.2	Clear	No

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane	250 mL Amber	2	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-120			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.96	**Total Depth (ft-bmp)**	75.5	**Water Column(ft)**	13	**Gallons in Well**	2.04
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	12:40	**Volumes Purged**	1.96	**Sample ID**	MW-19-120_060420	**Sampled by**	D. Stockard
Purge Start	11:40	**Gallons Purged**	4.00				
Purge End	12:40			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:40		200	62.96	0.00	6.85	2.14	613	3.26	17.5	-20.8	None	None
11:50	10	200	62.99	0.00	6.86	2.16	458	3.3	17	-21.8	None	None
11:55	5	200	63.01	0.00	6.81	2.15	235	2.21	17.2	-18.9	None	None
12:00	5	200	63.01	0.00	6.85	2.18	114	1.48	16.7	-20.8	None	None
12:05	5	200	63.02	0.00	6.78	2.19	93.8	1.27	16.3	-21.5	None	None
12:10	5	200	63.02	0.00	6.79	2.2	55.9	0.87	16.3	-26.1	None	None
12:15	5	200	62.99	0.00	6.81	2.21	47.1	0.76	16.2	-27.8	None	None
12:20	5	200	62.99	0.00	6.79	2.21	34.3	0.6	16.3	-29.4	None	None
12:25	5	200	62.99	0.00	6.83	2.2	29.7	0.55	16.5	-33	None	None
12:30	5	200	62.99	0.00	6.85	2.22	26	0.42	16.4	-36.4	None	None
12:35	5	200	62.99	0.00	6.82	2.22	22.7	0.35	16.5	-36.5	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D and VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:		Well Locked at Arrival:	yes
Condition of Well:		Well Locked at Departure:	yes
Well Completion:	NA	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-121			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.19	**Total Depth (ft-bmp)**	75	**Water Column(ft)**	13	**Gallons in Well**	2.08
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:05	**Volumes Purged**	1.92	**Sample ID**	MW-19-121_060420	**Sampled by**	D. Stockard
Purge Start	13:20	**Gallons Purged**	4.00				
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:20		200	62.19	0.00	6.81	1.29	118	1.33	17.5	-13	None	None
13:30	10	200	62.42	0.00	6.81	1.28	87.4	1.11	17.2	-14.5	None	None
13:40	10	200	62.49	0.00	6.82	1.29	67.9	1.09	16.8	-17.3	None	None
13:50	10	200	62.45	0.00	6.84	1.29	65.5	1.07	16.5	-19.8	None	None
13:55	5	200	62.51	0.00	6.86	1.29	61.6	1.11	16.3	-22.6	None	None
14:00	5	200	62.43	0.00	6.88	1.28	60	1.16	16.7	-26.3	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D and VOCs	40 mL Glass	3	HCL
Nitrate	125 mL Plastic	1	None
TKN and TP	250 mL Plastic	1	H2SO4

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-122			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.12	**Total Depth (ft-bmp)**	67	**Water Column(ft)**	5	**Gallons in Well**	0.79
MP Elevation		**Pump Intake (ft-bmp)**	66	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	15:50	**Volumes Purged**	2.53	**Sample ID**	MW-19-122_060520	**Sampled by**	D. Stockard
Purge Start	15:05	**Gallons Purged**	2.00				
Purge End	15:50			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:05		200	62.12	0.00	6.52	4.22	460	1.06	17.6	58.3	None	None
15:10	5	200	62.14	0.00	6.58	4.21	247	0.62	17.7	41.5	None	None
15:15	5	200	62.16	0.00	6.63	4.2	117	0.31	17.7	8	None	None
15:20	5	200	62.16	0.00	6.69	4.16	117	0.26	17	-33.8	None	None
15:25	5	200	62.22	0.00	6.68	4.18	50	0.24	17	-39	None	None
15:30	5	200	62.22	0.00	6.69	4.17	68.5	0.25	16.5	-36.3	None	None
15:35	5	200	62.21	0.00	6.72	4.1	46.6	0.23	16.9	-41.5	None	None
15:40	5	200	62.23	0.00	6.73	4.09	20.4	0.23	16.8	-43.6	None	None
15:45	5	200	62.21	0.00	6.74	4.06	18.9	0.21	16.8	-46.8	None	None
15:48	3	200	62.22	0.00	6.74	4.08	19.5	0.21	17	-47.4	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-123			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.39	**Total Depth (ft-bmp)**	74.9	**Water Column(ft)**	17	**Gallons in Well**	2.68
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	16:45	**Volumes Purged**	1.12	**Sample ID**	MW-19-123_060420	**Sampled by**	D. Stockard
Purge Start	15:55	**Gallons Purged**	3.00				
Purge End	16:45			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:55		200	58.39	0.00	6.74	2.13	803	1.65	16.2	44.5	None	None
16:00	5	200	60.55	0.00	6.69	2.17	383	0.46	15.2	33.6	None	None
16:05	5	200	61.85	0.00	6.74	2.13	72	0.46	15.1	18.7	None	None
16:10	5	200	61.85	0.00	6.78	2.12	42.6	0.37	15.3	12.9	None	None
16:15	5	200	63.32	0.00	6.81	2.11	27.1	0.26	15.2	6.1	None	None
16:20	5	200	63.65	0.00	6.84	2.1	16.5	0.24	15.6	1.8	None	None
16:25	5	200	64.1	0.00	6.83	2.09	11.3	0.23	15.3	-1.6	None	None
16:30	5	200	64.67	0.00	6.84	2.09	8.05	0.22	15.5	-9.6	None	None
16:35	5	200	64.92	0.00	6.86	2.07	7.5	0.23	15.5	-13.4	None	None
16:40	5	200	65.21	0.00	6.86	2.08	7.39	0.22	15.4	-9.5	None	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-124			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.79	**Total Depth (ft-bmp)**	73.9	**Water Column(ft)**	11	**Gallons in Well**	1.81
MP Elevation		**Pump Intake (ft-bmp)**	70	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	12:05	**Volumes Purged**		**Sample ID**	MW-19-124_060520	**Sampled by**	D. Stockard
Purge Start	11:05	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:05		200	62.79	0.00	6.73	2.06	67.4	0.35	16.3	89.1	None	None
11:20	15	200	62.79	0.00	6.74	2.06	38	0.26	17	78.6	None	None
11:25	5	200	62.79	0.00	6.82	2.07	24.9	0.25	16.3	74.8	None	None
11:30	5	200	62.79	0.00	6.8	2.05	22.4	0.25	16.5	75	None	None
11:35	5	200	62.79	0.00	6.81	2.07	19.8	0.23	16.2	67.7	None	None
11:40	5	200	62.82	0.00	6.81	2.06	40.9	0.28	16.3	61.5	None	None
11:45	5	200	62.83	0.00	6.82	2.06	21.2	0.23	16.5	55.9	None	None
11:50	5	200	62.81	0.00	6.83	2.05	14.3	0.18	16.4	51.4	None	None
11:55	5	200	62.81	0.00	6.83	2.06	11.7	0.19	16.4	47.4	None	None
12:00	5	200	62.82	0.00	6.83	2.06	9.98	0.18	16.5	43.2	None	None
12:05	5	200	62.82	0.00	6.83	2.06	8.65	0.18	16.4	41.1	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-19-125			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 80's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	Steel
Static Water Level (ft-bmp)	67.95	**Total Depth (ft-bmp)**	109.95	**Water Column(ft)**	42	**Gallons in Well**	27.3
MP Elevation		**Pump Intake (ft-bmp)**	107	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	16:10	**Volumes Purged**	0.04	**Sample ID**	MW-19-125_060420	**Sampled by**	Billy J Cobern
Purge Start	15:30	**Gallons Purged**	1.06				
Purge End	16:10			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:30		100	67.95	0.00							Clear	No
15:35	5	100	67.98	0.13	7.27	0.69	172	7.51	21.7	-6.5	Clear	No
15:40	5	100	68.01	0.26	7.41	1.68	118	5.78	19.3	-167.4	Clear	No
15:45	5	100	68.01	0.40	7.42	1.7	130	5.78	18.6	-181.5	Clear	No
15:50	5	100	68.01	0.53	7.43	1.68	82.9	4.58	19.7	-189.5	Clear	No
15:55	5	100	68.01	0.66	7.43	1.69	86.1	4.64	19	-195.6	Clear	No
16:00	5	100	68.01	0.79	7.41	1.67	84.3	4.03	21.3	-199.9	Clear	No
16:05	5	100	68.01	0.92	7.39	1.68	83.7	3.98	21.6	-199.5	Clear	No
16:10	5	100	68.01	1.06	7.39	1.67	84.1	3.95	21.3	-199.7	Clear	No

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments: All parameters stablized, but turbidity was above 10 NTU

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-23			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 85F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	46.12	**Total Depth (ft-bmp)**	61.28	**Water Column(ft)**	15	**Gallons in Well**	2.46
MP Elevation		**Pump Intake (ft-bmp)**	58.78	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:25	**Volumes Purged**		**Sample ID**	MW-23_060520	**Sampled by**	Austin Westhuis
Purge Start	14:55	**Gallons Purged**					
Purge End	15:30			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:00		200	46.12	0.26	6.96	1.22	21.6	1.32	14.2	-99	Clear	None
15:05	5	200	46.12	0.53	7.12	1.23	12	1.23	14.2	-95	Clear	None
15:10	5	200	46.12	0.79	7.11	1.22	4.17	1.06	14.4	-95.6	Clear	None
15:15	5	200	46.12	1.06	7.1	1.22	2.18	1.02	14.4	-92.7	Clear	None
15:20	5	200	46.12	1.32	7.1	1.2	1.31	0.97	14.1	-91.7	Clear	None
15:25	5	200	46.12	1.59	7.09	1.21	1.24	0.93	14	-91.3	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MW-91-2R			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 93F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.08	**Total Depth (ft-bmp)**	83.75	**Water Column(ft)**	27	**Gallons in Well**	4.33
MP Elevation		**Pump Intake (ft-bmp)**	81.25	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:00	**Volumes Purged**		**Sample ID**	MW-91-2R_060920	**Sampled by**	Austin Westhuis
Purge Start	02:35	**Gallons Purged**					
Purge End	15:03			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:40		200	57.08	0.26	7.01	1.3	9.62	0.04	16.3	-131.4	Clear	None
14:45	5	200	57.08	0.53	7.04	1.31	2.94	0.04	16.2	-134.6	Clear	None
14:50	5	200	57.08	0.79	7.02	1.31	1.61	0.03	16.1	-140.3	Clear	None
14:55	5	200	57.08	1.06	7.02	1.31	1.42	0.03	16.1	-139.1	Clear	None
15:00	5	200	57.08	1.32	7	1.31	1.2	0.03	16.1	-136.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
1,4-Dioxane	40 mL Glass	3	HCL
Metals	125 mL Plastic	1	HNO3
Hexavalent Chromium	125 mL Plastic	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-91-5			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.71	**Total Depth (ft-bmp)**	127.85	**Water Column(ft)**	71	**Gallons in Well**	11.56
MP Elevation		**Pump Intake (ft-bmp)**	125	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:45	**Volumes Purged**	0.11	**Sample ID**	MW-95-1_060320	**Sampled by**	Billy J Cobern
Purge Start	13:55	**Gallons Purged**	1.32				
Purge End	14:45			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:55		100	56.71	0.00							Clear	No
14:00	5	100	56.73	0.13	7.21	0.46	27.9	8.5	16.2	57.9	Clear	No
14:05	5	100	56.73	0.26	7.19	0.476	25.6	7.68	15.1	62	Clear	No
14:10	5	100	56.73	0.40	7.19	0.479	21.8	7.24	15.4	63.1	Clear	No
14:15	5	100	56.73	0.53	7.2	0.482	19.3	7.21	15	64.1	Clear	No
14:20	5	100	56.73	0.66	7.2	0.487	16.4	7.29	14.9	64.3	Clear	No
14:25	5	100	56.73	0.79	7.2	0.49	14.8	7.32	14.8	64.6	Clear	No
14:30	5	100	56.73	0.92	7.2	0.489	12.1	7.28	15.1	64.9	Clear	No
14:35	5	100	56.73	1.06	7.2	0.493	10.3	7.2	14.8	65.1	Clear	No
14:40	5	100	56.73	1.19	7.2	0.493	9.92	7.13	14.8	65.6	Clear	No
14:45	5	100	56.73	1.32	7.21	0.496	9.78	7.14	14.7	65.6	Clear	No

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane	250 mL Amber	1	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MW-91-6			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Partly Cloudy, 70's
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	53.6	**Total Depth (ft-bmp)**	95.34	**Water Column(ft)**	42	**Gallons in Well**	6.78
MP Elevation		**Pump Intake (ft-bmp)**	93	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:25	**Volumes Purged**	0.19	**Sample ID**	MW-91-6_060420	**Sampled by**	Billy J Cobern
Purge Start	09:35	**Gallons Purged**	1.32				
Purge End	10:25			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:35		100	53.6	0.00							Clear	N
09:40	5	100	53.79	0.13	7.72	1.33	22.2	1.5	17.4	29	Clear	N
09:45	5	100	53.79	0.26	7.7	1.29	37.8	0.82	17.7	-63.5	Clear	N
09:50	5	100	53.75	0.40	7.69	1.29	24.8	0.86	18.6	-82.3	Clear	N
09:55	5	100	53.75	0.53	7.68	1.3	19.8	0.88	19	-97.8	Clear	N
10:00	5	100	53.75	0.66	7.65	1.3	15.9	0.82	19.3	-120.5	Clear	N
10:05	5	100	53.75	0.79	7.63	1.3	14.1	0.86	19.1	-123.7	Clear	N
10:10	5	100	53.75	0.92	7.61	1.3	12.2	0.9	19.1	-123.9	Clear	N
10:15	5	100	53.75	1.06	7.61	1.3	9.89	0.93	19.2	-124	Clear	N
10:20	5	100	53.75	1.19	7.61	1.3	9.78	0.97	19.2	-124.3	Clear	N
10:25	5	100	53.75	1.32	7.6	1.3	9.7	0.94	19.2	-123.8	Clear	N

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4 Dioxane	250 mL Amber	1	HCL

Comments: Installed bolts

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	MWBP-10-UST5-6			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	29.47	**Total Depth (ft-bmp)**	37.09	**Water Column(ft)**	8	**Gallons in Well**	1.24
MP Elevation		**Pump Intake (ft-bmp)**	34	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	16:00	**Volumes Purged**		**Sample ID**	MWBP-10-UST5-6	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:30		250	29.47	0.00	7.24	2.82	34.2	1.96	14.2	-76.8	Clear	None
15:35	5	250	29.47	0.00	7.24	2.8	11.5	4.22	13.3	-86	Clear	None
15:40	5	250	29.47	0.00	7.22	2.76	8.4	4.48	13.1	-86	Clear	None
15:45	5	250	29.47	0.00	7.28	2.81	3.48	4.95	13.4	-86.4	Clear	None
15:50	5	250	29.47	0.00	7.28	2.81	3.04	4.97	13.1	-85.8	Clear	None
15:55	5	250	29.47	0.00	7.3	2.81	3.22	4.91	13	-84.6	Clear	None
16:00	5	250	29.47	0.00	7.3	2.81	2.59	4.76	13.1	-86.6	Clear	None

Constituent Sampled	Container	Number	Preservative
Metals	125 mL Plastic	1	HNO3
VOCs	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MWBP-11-UST1-4			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.1	**Total Depth (ft-bmp)**	11.2	**Water Column(ft)**	10	**Gallons in Well**	6.56
MP Elevation		**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:05	**Volumes Purged**		**Sample ID**	MWBP-11-UST1-4_060220	**Sampled by**	Jacob Pisarkiewicz
Purge Start	13:30	**Gallons Purged**					
Purge End	14:00			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:35		200	1.4	0.00	9.77	1.09	1.27	1.64	18.5	180	Clear	None
13:40	5	200	1.4	0.00	9.75	1.1	1.16	1.43	18.4	173.5	Clear	None
13:45	5	200	1.4	0.00	9.68	1.15	0.02	0.58	17.8	99.1	Clear	None
13:50	5	200	1.4	0.00	9.63	1.18	0.02	0.33	18	46.1	Clear	None
13:55	5	200	1.4	0.00	9.64	1.18	0.02	0.32	17.9	43	Clear	None
14:00	5	200	1.4	0.00	9.66	1.18	0.02	0.3	17.9	38.2	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL
Metals	250 mL Plastic	1	HNO3

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	MWBP-12-UST1-4			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1.8	**Total Depth (ft-bmp)**	11.4	**Water Column(ft)**	10	**Gallons in Well**	6.24
MP Elevation		**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	13:10	**Volumes Purged**		**Sample ID**	MWBP-12-UST1-4_060220	**Sampled by**	Jacob Pisarkiewicz
Purge Start	12:35	**Gallons Purged**					
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:40		200	1.82	0.00	7.17	0.45	0.51	4.68	17	275	Clear	None
12:45	5	200	1.82	0.00	7.58	0.43	1.23	2.96	16.9	247.5	Clear	None
12:50	5	200	1.82	0.00	7.71	0.42	0.98	2.71	16.7	243.7	Clear	None
12:55	5	200	1.82	0.00	7.96	0.42	0.78	2.11	16.5	234.5	Clear	None
13:00	5	200	1.82	0.00	8.03	0.42	0.65	2.03	16.6	229.9	Clear	None
13:05	5	200	1.82	0.00	8.05	0.42	0.59	1.98	16.4	226.6	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCL
Metals	250 mL Plastic	1	HNO3
SVOCs	1L Glass	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	P2-MW-02			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 93F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	36.7	**Total Depth (ft-bmp)**	40.18	**Water Column(ft)**	3	**Gallons in Well**	0.57
MP Elevation		**Pump Intake (ft-bmp)**	39.68	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:10	**Volumes Purged**		**Sample ID**	P2-MW-02_060920	**Sampled by**	Austin Westhuis
Purge Start	01:45	**Gallons Purged**					
Purge End	14:15			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:50		200	36.86	0.26	6.5	0.58	4.34	0.05	14.9	-31.7	Clear	None
13:55	5	200	37.18	0.53	6.86	0.48	2.7	0.03	14.7	-17.1	Clear	None
14:00	5	200	37.39	0.79	6.86	0.461	2.32	0.02	14.7	-11.2	Clear	None
14:05	5	200	37.46	1.06	6.86	0.455	2.02	0.02	14.7	-10.1	Clear	None
14:10	5	200	37.49	1.32	6.87	0.45	1.81	0.02	14.6	-9.9	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 2
Condition of Well: Good
Well Completion: Flush mount
Well Locked at Arrival: no
Well Locked at Departure: no
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	P2-MW-04			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.01	**Total Depth (ft-bmp)**	35.7	**Water Column(ft)**	26	**Gallons in Well**	4.17
MP Elevation		**Pump Intake (ft-bmp)**	35	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:05	**Volumes Purged**		**Sample ID**	P2-MW-04_061020	**Sampled by**	Jacob Pisarkiewicz
Purge Start	09:20	**Gallons Purged**					
Purge End	10:00			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:35		200	10.2	0.00	7.13	1.56	50.9	0.22	17.6	-77.8	Clear	None
09:40	5	200	10.2	0.00	7.15	1.56	41.1	0.2	17.4	-79	Clear	None
09:45	5	200	10.2	0.00	7.18	1.52	14.9	0.32	17.5	-81.1	Clear	None
09:50	5	200	10.2	0.00	7.18	1.52	10.2	0.3	17.3	-82.8	Clear	None
09:55	5	200	10.2	0.00	7.21	1.53	8.32	0.2	17.4	-86.5	Clear	None
10:00	5	200	10.2	0.00	7.21	1.53	7.35	0.21	17.4	-86.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
SVOCs	1L Amber	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 2	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	Na

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Project Number	30042872	**Well ID**	P3-SB-28			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC,Stainless Steel
Static Water Level (ft-bmp)	6.15	**Total Depth (ft-bmp)**	10.47	**Water Column(ft)**	4	**Gallons in Well**	0.7
MP Elevation		**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:15	**Volumes Purged**		**Sample ID**	P3-SB-28	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	#Error						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:25		250	6.42	0.00	7.62	0.49	18.4	1.76	17.5	28.1	Clear	None
11:30	5	250	6.42	0.00	7.66	0.46	10.1	0.93	17.7	13.4	Clear	None
11:35	5	250	6.42	0.00	7.97	0.46	8.81	0.84	18	11.7	Clear	None
11:40	5	250	6.42	0.00	7.67	0.46	4.25	0.78	18	8	Clear	None
11:45	5	250	6.42	0.00	7.67	0.46	2.78	0.7	18	3.2	Clear	None
11:50	5	250	6.42	0.00	8.67	0.44	1.66	0.68	17.9	0	Clear	None
11:55	5	250	6.42	0.00	7.67	0.44	1.6	0.65	17.9	-1.1	Clear	None
12:00	5	250	6.42	0.00	7.67	0.43	1.33	0.58	17.8	-2.5	Clear	None
12:05	5	250	6.42	0.00	7.68	0.42	0.32	0.51	17.9	-5.7	Clear	None
12:10	5	250	6.42	0.00	7.68	0.42	0.15	0.52	17.9	-7.8	Clear	None
12:15	5	250	6.42	0.00	7.69	0.41	0.05	0.53	18	-9.7	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
SVOCs	1L Glass	2	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	P6-SB-07			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.81	**Total Depth (ft-bmp)**	23.6	**Water Column(ft)**	18	**Gallons in Well**	2.89
MP Elevation		**Pump Intake (ft-bmp)**	21	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	14:30	**Volumes Purged**		**Sample ID**	P6-SB-07_060420	**Sampled by**	Jacob Pisarkiewicz
Purge Start	13:55	**Gallons Purged**					
Purge End	14:25			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:00		200	6	0.00	7.43	0.71	9.05	0.43	16.6	-12.1	Clear	None
14:05	5	200	6	0.00	7.34	0.72	4.35	0.28	16	-56.5	Clear	None
14:10	5	200	6	0.00	7.36	0.72	9.59	0.22	15.7	-71.2	Clear	None
14:15	5	200	6	0.00	7.34	0.72	4.35	0.19	15.5	-87.6	Clear	None
14:20	5	200	6	0.00	7.34	0.73	3.25	0.18	15.8	-90.6	Clear	None
14:25	5	200	6	0.00	7.34	0.73	2.2	0.18	15.9	-91.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL Plastic	2	None
SVOCs	1L Glass	1	None

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 6
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	PW-14-01			**Date**	6/9/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.39	**Total Depth (ft-bmp)**	89.4	**Water Column(ft)**	29	**Gallons in Well**	42.42
MP Elevation		**Pump Intake (ft-bmp)**	86	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	16:20	**Volumes Purged**	0.04	**Sample ID**	PW-14-01_060920	**Sampled by**	D. Stockard
Purge Start	15:50	**Gallons Purged**	1.50				
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:50		200	60.39	0.00	6.62	1.66	24.2	1.58	19	-43.8	None	None
16:00	10	200	60.59	0.00	6.65	3.25	6.75	0.54	18.8	-51.5	None	None
16:05	5	200	60.72	0.00	6.7	3.24	1.68	0.32	18.3	-59.8	None	None
16:10	5	200	60.88	0.00	6.73	3.22	1.39	0.26	18	-63.2	None	None
16:15	5	200	60.95	0.00	6.75	3.22	1.61	0.25	18.1	-66.3	None	None
16:20	5	200	60.95	0.00	6.78	3.2	1.57	0.27	18.1	-68.3	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	PW-14-02			**Date**	6/3/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 60s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.53	**Total Depth (ft-bmp)**	91	**Water Column(ft)**	28	**Gallons in Well**	41.64
MP Elevation		**Pump Intake (ft-bmp)**	87	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	10:35	**Volumes Purged**	0.07	**Sample ID**	PW-14-02_060220	**Sampled by**	D. Stockard
Purge Start	09:53	**Gallons Purged**	3.00				
Purge End	10:34			**Replicate/ Code No.**	DUP-04		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:55		150	62.53	0.00	6.72	1.91	15.5	1.59	15.4	168.9	None	Sulfurous
10:00	5	150	62.53	0.00	6.83	2.21	1.19	0.52	15.6	129.4	None	Sulfurous
10:05	5	150	62.53	0.00	6.88	2.21	0.02	0.46	15.4	113.2	None	Sulfurous
10:10	5	150	62.53	0.00	6.91	2.21	0.02	0.42	15.3	94	None	Sulfurous
10:15	5	150	63.19	0.00	6.93	2.21	0.02	0.4	15.6	80.1	None	Sulfurous
10:20	5	150	63.26	0.00	6.96	2.2	0.02	0.4	15.3	57.2	None	Sulfurous
10:25	5	150	63.28	0.00	6.99	2.2	0.02	0.4	15.5	52.4	None	Sulfurous
10:32	7	150	63.31	0.00	7	2.21	0.02	0.39	15.5	49	None	Sulfurous

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D and VOCs	40 mL Glass	6	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: _____
Condition of Well: _____
Well Completion: NA
Well Locked at Arrival: _____
Well Locked at Departure: _____
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	PW-14-03			**Date**	6/10/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Mostly Cloudy, 83F
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.97	**Total Depth (ft-bmp)**	94.3	**Water Column(ft)**	30	**Gallons in Well**	4.93
MP Elevation		**Pump Intake (ft-bmp)**	91.8	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:25	**Volumes Purged**		**Sample ID**	PW-14-03_061020	**Sampled by**	Austin Westhuis
Purge Start	14:00	**Gallons Purged**					
Purge End	14:30			**Replicate/ Code No.**	Not Applicable		

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:05		200	63.97	0.26	6.43	2.19	15.9	0.02	20.6	-21	Clear	None
14:10	5	200	63.97	0.53	6.45	2.1	11.7	0.02	18.4	-20.1	Clear	None
14:15	5	200	63.97	0.79	6.42	2.08	9.76	0.02	18.2	-19.3	Clear	None
14:20	5	200	63.97	1.06	6.41	2.07	9.22	0.02	18.2	-19.2	Clear	None
14:25	5	200	63.97	1.32	6.4	2.09	9.12	0.02	18.1	-19.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-Dioxane	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3
Condition of Well: Good
Well Completion: Stick-up
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: 6000B

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	TW-14-02			**Date**	6/4/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 70s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.62	**Total Depth (ft-bmp)**	75.2	**Water Column(ft)**	17	**Gallons in Well**	2.69
MP Elevation		**Pump Intake (ft-bmp)**	72	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	15:30	**Volumes Purged**	0.74	**Sample ID**	TW-14-02_060420	**Sampled by**	D. Stockard
Purge Start	15:00	**Gallons Purged**	2.00				
Purge End	#Error			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
15:00		200	58.62	0.00	6.4	5.2	47.4	2.85	18	75	None	None
15:05	5	200	59.58	0.00	6.43	5.15	23.9	0.84	16.6	60.2	None	None
15:10	5	200	59.92	0.00	6.46	5.15	9.08	0.52	16.6	53.5	None	None
15:15	5	200	59.92	0.00	6.49	5.2	7.69	0.54	16.7	41	None	None
15:20	5	200	60.04	0.00	6.48	5.18	3.25	0.38	16.5	28.2	None	None
15:25	5	200	60.21	0.00	6.48	5.14	3.1	0.35	16.7	25.5	None	None
15:30	5	200	60.21	0.00	6.5	5.14	3.32	0.37	16.7	22.1	None	None

Constituent Sampled	**Container**	**Number**	**Preservative**
1,4-D and VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	TW-15-12			**Date**	6/2/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.45	**Total Depth (ft-bmp)**	78	**Water Column(ft)**	19	**Gallons in Well**	12.06
MP Elevation		**Pump Intake (ft-bmp)**	75	**Purge Method**	Low-Flow	**Sample Method**	Grab
Sample Time	18:15	**Volumes Purged**	0.25	**Sample ID**	TW-15-12_060220	**Sampled by**	D. Stockard
Purge Start	17:15	**Gallons Purged**	3.00				
Purge End	18:15			**Replicate/ Code No.**			

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
17:15		150	59.45	0.00	6.87	1.95	88.5	3.71	16.8	177.1	Pale orange	None
17:25	10	150	59.45	0.00	6.9	2.03	19.1	0.61	16.9	177.4	Pale orange	None
17:30	5	150	59.45	0.00	6.74	2.37	22.9	0.32	15.9	158.4	Pale orange	None
17:50	20	150	59.45	0.00	6.9	2.31	1100	1.03	16.2	70.2	Pale orange	None
17:55	5	150	59.45	0.00	6.91	2.3	514	1.2	16.5	67.4	Pale orange	None
18:00	5	150	60.45	0.00	6.92	2.27	1040	1.54	15.8	61.8	Pale orange	None
18:05	5	150	60.69	0.00	6.92	2.29	1100	1.47	15.7	48.7	Pale orange	None
18:10	5	150	60.69	0.00	6.94	2.29	476	1.47	15.5	36.8	Pale orange	None
18:14	4	150	60.78	0.00	6.92	2.31	691	1.33	15.6	27.9	Pale orange	None

Constituent Sampled	Container	Number	Preservative
1,4-D	40 mL Glass	3	HCL
Nitrate	125 mL Plastic	1	None
TKN and TP	250 mL Plastic	1	H2SO4

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:
Condition of Well:
Well Completion: NA
Well Locked at Arrival:
Well Locked at Departure:
Key Number To Well: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	UNK-10			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.45	**Total Depth (ft-bmp)**	14.5	**Water Column(ft)**	14	**Gallons in Well**	9.13
MP Elevation		**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:00	**Volumes Purged**		**Sample ID**	UNK-10	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	#Error						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:15		250	0.8	0.00	7.27	0.29	7.52	0.66	16.6	-109.1	Clear	None
10:20	5	250	1.24	0.00	7.24	0.28	8.11	0.32	17.2	-118.5	Clear	None
10:25	5	250	1.24	0.00	7.24	0.28	2.99	0.21	17.2	-127.6	Clear	None
10:30	5	250	1.5	0.00	7.29	0.28	2.65	0.15	17.1	-133.9	Clear	None
10:35	5	250	1.24	0.00	7.28	0.28	10.6	0.12	16.8	-136.4	Clear	None
10:40	5	250	1.5	0.00	7.29	0.29	10.4	0.13	16.3	-137.3	Clear	None
10:45	5	250	1.5	0.00	7.22	0.31	3.75	0.11	16	-134.5	Clear	None
10:50	5	250	1.5	0.00	7.29	0.31	1.37	0.12	15.5	-140.2	Clear	None
10:55	5	250	1.5	0.00	7.29	0.31	1.02	0.11	15.8	-140.8	Clear	None
11:00	5	250	1.5	0.00	7.33	0.31	1.42	0.11	15.7	-144.5	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
VOCs	50 mL Glass	3	HCL

Comments: Black flecks in water

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	UNK-11			**Date**	6/8/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	1	**Total Depth (ft-bmp)**	11.8	**Water Column(ft)**	11	**Gallons in Well**	1.75
MP Elevation		**Pump Intake (ft-bmp)**	9.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:50	**Volumes Purged**		**Sample ID**	UNK-11	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	#Error						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
08:45		250	1.76	0.00	8.17	0.3	34	3.42	16.6	145.5	Clear	None
08:50	5	250	2.35	0.00	8.26	0.6	34.1	3.17	17	132.9	Clear	None
08:55	5	250	2.97	0.00	8.3	0.3	14.4	3.1	17	124.6	Clear	None
09:00	5	250	3.54	0.00	8.28	0.31	13.5	3.4	16.6	122.3	Clear	None
09:05	5	250	4.09	0.00	8.17	0.31	8.72	3	16.7	119.1	Clear	None
09:10	5	250	4.58	0.00	8.08	0.32	9.02	2.57	16.8	115	Clear	None
09:15	5	250	4.58	0.00	8.06	0.32	9	2.78	16.9	114	Clear	None
09:20	5	250	4.62	0.00	8.02	0.34	12.8	2.42	15.7	110.7	Clear	None
09:25	5	250	5.1	0.00	7.84	0.34	10.8	2.11	16.2	113	Clear	None
09:30	5	250	5.62	0.00	7.88	0.34	10.2	2.22	16.2	99.2	Clear	None
09:35	5	250	5.9	0.00	7.85	0.34	13.1	2.21	16.1	87.9	Clear	None
09:40	5	250	6.11	0.00	7.84	0.34	12.6	2.36	16.4	76.9	Clear	None
09:45	5	250	6.77	0.00	7.83	0.34	11.5	3.28	15.2	42.6	Clear	None
09:50	5	250	7.01	0.00	7.82	0.34	10.2	3.07	15.4	40.5	Clear	None

Constituent Sampled	Container	Number	Preservative
SVOCs	1L Amber	2	None
VOCs	50 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

Well diameter (inches) 1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
= gallons per foot 1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

Well Information

Well Location:	Plant 3	Well Locked at Arrival:	yes
Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30042872	**Well ID**	UNK-15			**Date**	6/5/2020
Project Name/Location	Lansing, MI					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.5	**Total Depth (ft-bmp)**	15.8	**Water Column(ft)**	15	**Gallons in Well**	9.94
MP Elevation		**Pump Intake (ft-bmp)**	9	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:40	**Volumes Purged**		**Sample ID**	UNK-15	**Sampled by**	Jessica Fransted
Purge Start	#Error	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	#Error						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:40		250	0.5	0.00	7.89	0.69	21.1	0.8	17.1	79	Clear	None
09:45	5	250	0.5	0.00	7.83	0.69	5.83	0.65	17.2	64.4	Clear	None
09:50	5	250	0.5	0.00	7.84	0.69	2.15	0.62	17.2	59.8	Clear	None
09:55	5	250	1.18	0.00	7.85	0.69	7.29	0.5	16.9	43.9	Clear	None
10:00	5	250	1.52	0.00	7.87	0.69	10.3	0.5	16.5	37.5	Clear	None
10:05	5	250	1.79	0.00	7.87	0.69	14.5	0.46	16.7	32.5	Clear	None
10:10	5	250	1.91	0.00	7.87	0.69	8.77	0.44	16.7	29.2	Clear	None
10:15	5	250	2.18	0.00	7.88	0.69	10.3	0.47	16.8	24.5	Clear	None
10:20	5	250	2.36	0.00	7.88	0.69	10.1	0.51	16.7	21.9	Clear	None
10:25	5	250	2.5	0.00	7.89	0.69	5.78	0.6	16.6	19.7	Clear	None
10:30	5	250	2.7	0.00	7.89	0.69	10.3	0.63	16.9	17.7	Clear	None
10:35	5	250	2.7	0.00	7.88	0.69	10.3	0.6	16.8	20.7	Clear	None
10:40	5	250	2.9	0.00	7.88	0.69	10.3	0.6	16.9	20.2	Clear	None

Constituent Sampled	**Container**	**Number**	**Preservative**
PFAS	250 mL Plastic	2	None

Comments: Missing screws

Well Casing Volume Conversion

Well diameter (inches) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Well Information

Well Location: Plant 3

Well Locked at Arrival: yes

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Condition of Well:	Good	Well Locked at Departure:	yes
Well Completion:	Flush mount	Key Number To Well:	NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliiSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius