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Date: October 13, 2021
Our Ref: 30075941

Subject: 2021 Semi-Annual Groundwater Monitoring Report
RACER Lansing - Plants 2, 3 and 6
Lansing, Michigan

Dear Ms. Matlock,

Arcadis of Michigan, LLC (Arcadis) completed the first and second quarter 2021 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 following sampling events were completed in accordance with the 2019 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:

- First quarter 2021. A quarterly groundwater sampling and gauging event at select monitoring wells, completed from March 1 through 5, 2021.
- Second quarter 2021. Routine gauging of light non-aqueous phase liquid (LNAPL) wells and a site-wide semi-annual groundwater sampling and gauging event at select monitoring wells, completed from June 1 through 9, 2021.

All groundwater monitoring activities were completed in accordance with the Revised IGMP (Arcadis, 2019a). The sampling frequencies and analytes for each well are included in **Table 1**. The locations of all site monitoring wells are provided on **Figures 1A** and **1B**. The following monitoring wells were dry during the second quarter 2021 gauging event and could not be sampled per the IGMP:

- Monitoring well MW-18-96 was installed in shallow fill material at Plant 3 and contained water during development and initial sampling; however, the well has been dry since June 2020.
- Monitoring well MW-19-110 was installed at the request of the EGLE in an area at Plant 3 with limited perched groundwater with the intent of verifying whether saturated conditions existed and if the well would produce enough water for sampling.

- Monitoring well MW-19-113 was installed in a sand seam encountered from 16 to 23 feet below ground surface (ft bgs) at northern Plant 3 and contained approximately 7 feet of water during development and initial sampling during 2019. The water level decreased dramatically during 2020 (close to 6 ft) and continued to decrease until the well contained insufficient water to collect a sample.
- MW-18-96, MW-19-110, and MW-19-113 will next be gauged and sampled, if possible, during fourth quarter 2021.

SITE ACTIVITIES

During the first quarter 2021 sampling event, groundwater elevations were collected from a total of 86 wells and groundwater samples were collected from a total of 47 wells as part of a quarterly event. During the second quarter 2021 sampling event, groundwater elevations were collected from a total of 155 wells, LNAPL gauging was completed at a total of 24 wells, and groundwater samples were collected from a total of 92 wells.

Groundwater Sampling

Monitoring wells were sampled and analyzed for one or more of the following parameters:

- Target compound list (TCL) volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method SW8260B, Revision 2 or SW8260C, Revision 3.
- 1,4-Dioxane using USEPA Method SW8260B-SIM.
- 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 Field Sampling Plan (FSP) and the Arcadis standard operating procedure (SOP) for low-flow sample collection (Arcadis 2011a), and generally consistent with EGLE's Remediation and Redevelopment Division (RRD) Op Memo 2, Attachment 5 (EGLE 2004). Samples collected for 1,4-dioxane, and VOCs 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 low-flow sampling logs are included as **Appendix A**. Laboratory analytical reports and data validation reports will be included in the 2021 Annual Groundwater Monitoring Report.

RESULTS

A summary table of the groundwater analytical data collected during the reporting periods are presented in **Table 2**. Results of activities completed during the first and second quarter 2021 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 2** with exceedances of Part 201 Residential Drinking Water (DW) Criteria highlighted in gray and summarized on **Figures 2 through 6**. Results of the first and second quarter 2021 sampling event are summarized below.

- In accordance with the approved IGMP Table (**Table 1**), there were no samples collected for 1,4-dioxane analysis from the perched wells in the first or second quarter. Sampling of perched groundwater for 1,4-dioxane will be completed as part of annual groundwater sampling event scheduled for fourth quarter 2021.
- **Lower 1,4-Dioxane:** The lower 1,4-dioxane biosparge system has been operating at Plant 3 since 2019 and Plant 2 since 2020. Performance monitoring of the biosparge system is summarized in the Lower 1,4-Dioxane Biosparge Update Report (Arcadis 2021a). The 1,4-dioxane results for many of the weathered bedrock wells included in routine groundwater monitoring show decreasing concentrations March to June either due to the biosparge operation and/or seasonal fluctuation (**Figure 2**). The results at the perimeter of the lower 1,4-dioxane plume were reviewed for potential changes:
  - Southern Extent (the toe) – The lower 1,4-dioxane plume is defined to the south by MW-16-74, MW-16-75 MW-16-77, MW-16-78 and MW-16-79. These results suggest no significant expansion has occurred at the southern toe of the lower 1,4-dioxane plume since 2018. Future migration to the southeast is not expected due to the operation of the biosparge system and geologic conditions described as part of the Lower 1,4-Dioxane Conceptual Site Model (Arcadis 2021b).
  - Northeast Lobe (Plant 2) – In 2021 decreasing concentrations were observed within the northeast lobe of the lower 1,4-dioxane plume at wells MW-16-84, MW-16-85 and MW-17-86, suggesting a reversal of the increasing trends observed during 2018 and 2019. Decreases are attributed to the operation of the biosparge system (Arcadis 2021a):
    - MW-16-84: 1,4-dioxane concentrations have decreased from 81 µg/L in December 2020 to 66 µg/L in March 2021 and then 15 µg/L in June 2021.
    - MW-16-85: 1,4-Dioxane concentrations have decreased from 8 µg/L in December 2020 to 4 µg/L in June 2021.
    - MW-17-86: 1,4-Dioxane concentrations at MW-17-86 have decreased from a high of 106 µg/L in December 2020 to 69 µg/L in June 2021.
  - MW-20-130: Well MW-20-130 is a weather bedrock monitoring well installed as a deep sentinel for PFAS at the Plant 2 PFAS source area. MW-20-130 had a 1,4-dioxane detection of 61 µg/L in December 2020 and 115 µg/L during June 2021. It is unclear if the concentrations identified in MW-20-130 are related to migration from the Plant 2 LNAPL area, or vertical migration from a comingled source in the perched zone. Additional investigation of the perched zone and weathered bedrock in the vicinity of MW-20-130 are outlined in the 1,4-Dioxane Monitoring Well Installation and Test Well Abandonment Work Plan (Arcadis 2021c), submitted to EGLE on August 11, 2021.
  - An updated plume stability analysis, including statistical evaluation of lower 1,4-dioxane concentrations will be completed as part of the 2021 Annual Groundwater Monitoring Report.
- **VOCs (other than 1,4-dioxane):** In accordance with the approved IGMP Table (**Table 1**), most wells were not sampled for VOCs in the first or second quarter. Analysis of samples from these wells for VOCs is on an annual or biennial rotation and VOCs will be analyzed in upcoming events. Of the five wells that were sampled for VOCs, two wells located near the east Plant 6 entrance (MW-20-131 and MW-20-132) had vinyl

chloride concentrations of 3 micrograms per liter (µg/L), in excess of the DW criteria (2.0 µg/L) (**Figure 3**). A vapor intrusion investigation was completed in this area and discussed in the Plant 2, 3 and Plant 6 Vapor Intrusion Investigation Summary (Arcadis 2021d). Soil vapor sampling at SVMP-20-01, located between the Plant 6 entrance and the residential properties located to the northeast, has been non-detect for vinyl chloride and otherwise shown no exceedances of site-specific vapor intrusion criteria (SSVIAC) for any other VOC. The final results of the Plant 6 VI monitoring will be provided under separate cover, likely first quarter 2022.

Weathered bedrock wells MW-14-61, MW-17-86, and MW-19-120, located in the lower 1,4-dioxane plume on Plant 2, are monitored for VOCs semi-annually due to previously observed low detections of chlorinated VOCs (e.g., 1,2-DCE, chloroethane) potentially related to leakage from the perched zone. In June 2021, VOCs were not detected in MW-14-61, MW-17-86, or MW-19-120.

- **PFAS:** Overall, PFAS results are consistent with those found in the 2019 PFAS addendum, the 2019 Annual Groundwater Monitoring Report, and the 2020 Annual Groundwater Monitoring Report (Arcadis, 2019b; 2020; 2021e).
  - Perfluorooctane sulfonic acid (PFOS) concentrations exceeded the DW Criteria (16 nanograms per liter [ng/L]) and GSI criteria (12 ng/L) at 14 perched monitoring wells (**Figure 4**).
  - Perfluorooctanoic acid (PFOA) concentrations exceeded the DW Criterion of 8 ng/L at 20 perched monitoring wells (**Figure 5**).
  - Perfluorononanoic acid (PFNA) concentrations exceeded the DW Criteria value of 6 ng/L at one monitoring well on Plant 2, one monitoring well on Plant 3, and four monitoring wells located on Plant 6 (**Figure 6**). The highest concentration of PFNA was 208 ng/L observed in Plant 6 source area well P6-SB-07. Other exceedances ranged from 6.6 ng/L to 16.5 ng/L.
  - The only detection of perfluorohexanesulfonic acid (PFHxS) that exceeds the DW Criteria value of 51 ng/L was a concentration of 1,160 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 first and/or 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, PFBS, and PFHxA, 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.

Although generally consistent with previous results, a few detections of PFAS contaminants observed in the perched zone near the property boundary are described below:

- MW-18-88 and MW-18-95, perched monitoring wells located along the eastern boundary of Plant 3, contained maximum PFOS concentrations of 219 ng/L and 59.4 ng/L respectively, exceeding the DW criterion of 16 ng/L and the GSI criterion of 12 ng/L. Both well locations had PFOA and PFNA detections below criteria.
- MW-18-102 through MW-18-106 and MW-19-114 – 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-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 (25.9 ng/L in first quarter and 18.1 ng/L in second quarter) and MW-14-70 (51.9 ng/L in first quarter and 38.5 ng/L in second quarter) – also contained PFOA at concentrations exceeding DW criteria.

- Installation of six additional monitoring wells (MW-21-133 through MW-21-138) was completed in March 2021 along the southeastern perimeter of Plant 6 and off-site to the south to facilitate long-term monitoring for PFAS. Of these, the three southeastern boundary wells (MW-21-133, 134 and 135) had PFOA concentrations in excess of the DW criteria.
  - Based on the results from these investigation activities, PFAS south of Plant 6 has been delineated. Additional work was completed in September 2021 to define the extent of PFOA to the east and northeast of Plant 6. Additional details can be found in the Plant 6 Off-Site Investigation Work Plan (Arcadis 2021f).

Groundwater Elevation Monitoring

Groundwater elevations collected from the first and second quarter events are summarized on **Table 4**. Groundwater elevation contour maps, hydrographs, and plume stability evaluation will be completed as part of the 2021 Annual Groundwater Monitoring Report.

CONCLUSIONS

The first quarter and second quarter 2021 monitoring results do not suggest significant changes to the Site groundwater conditions with the exception of decreasing concentrations observed within the lower 1,4-dioxane plume. The decreased 1,4-dioxane concentrations in weathered bedrock are consistent with the results of the Lower 1,4-Dioxane Biosparge Update Report (Arcadis 2021a) that highlights stable to decreasing 1,4-dioxane trends within biosparge performance monitoring wells. Monitoring will continue during the third and fourth quarters of 2021 per the approved revised Interim Groundwater Monitoring Plan matrix (Arcadis, 2019a). The 2021 Annual Groundwater Monitoring Report will be prepared following the fourth quarter sampling event and will include a summary of all 2021 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 at patrick.curry@arcadis.com (810.225.1926).

Sincerely,
Arcadis of Michigan, LLC

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CC. John McCabe, EGLE
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Randy Seida, Westside Water
Alec Malvetis, City of Lansing
Brad Beck, Lansing Township
Cheryl Louden, LBWL
Angie Cosman, Ingham County Drain Commission
Lansing Public Library

Enclosures:

Tables

Table 1 – RACER 2019 Revised Interim Groundwater Monitoring Summary

Table 2 – Summary of Groundwater Analytical Results – January to June 2021

Table 3 – Summary of LNAPL Thickness – June 2021

Table 4 – Summary of Groundwater Elevations – January to June 2021

Figures

Figure 1A – Summary of Plants 2 & 6 Monitoring Well Locations

Figure 1B – Summary of Plant 3 Monitoring Well Locations

Figure 2 – Summary of 1,4-Dioxane Analytical Results in Lower Wells – 2021

Figure 3 – Summary of VOC Analytical Results – 2021

Figure 4 – Summary of PFOS Analytical Results – 2021

Figure 5 – Summary of PFOA Analytical Results – 2021

Figure 6 – Summary of PFNA Analytical Results – 2021

Appendices

Appendix A – Low-Flow Groundwater Sampling Logs – January to June 2021

Tables

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 2 - Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	SVOCs	PFAS	
Plant 2							
Perched							
LMW-12-01	SA						LNAPL Monitoring
LMW-12-02	SA						LNAPL Monitoring
LMW-12-03D	SA						LNAPL Monitoring
LMW-12-03S	SA						LNAPL Monitoring
LMW-12-04	SA						LNAPL Monitoring
LMW-12-05	SA						LNAPL Monitoring
LMW-12-06	SA						LNAPL Monitoring
LMW-12-07	SA						LNAPL Monitoring
LMW-12-08	SA						LNAPL Monitoring
LMW-14-12D	SA						LNAPL Monitoring
LMW-14-13D	SA						LNAPL Monitoring
LMW-14-14D	SA						LNAPL Monitoring
LMW-14-15D	SA						LNAPL Monitoring
LMW-15-16D	SA						LNAPL Monitoring
LMW-15-17D	SA						LNAPL Monitoring
MW-01(2)	A	B					VOC sentinel
MW-12-07	A						Groundwater elevation monitoring
MW-12-08	A						Groundwater elevation monitoring
MW-12-09	A	B	A			SA	VOC Sentinel, Perched 1,4-dioxane sentinel, PFAS sentinel
MW-12-18	SA	B				SA	VOC sentinel, PFAS sentinel
MW-14-54	A	B					VOC monitoring, SVOC evaluation
MW-14-55	A	B					VOC monitoring
MW-14-57	A		A				Perched 1,4-dioxane monitoring
MW-14-58	SA	B	A			SA	Perched 1,4-dioxane monitoring, PFAS Monitoring

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 2 - Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	SVOCs	PFAS	
MW-14-59	SA	B	A		Qd	SA	Perched 1,4-dioxane monitoring, SVOC evaluation, PFAS monitoring
MW-14-60	SA	B	A		Qd	SA	Perched 1,4-dioxane monitoring, SVOC evaluation, PFAS monitoring
MW-14-62	SA	B	A		Qd	SA	Perched 1,4-dioxane monitoring, PFAS Monitoring
P2-MW-02	A						Groundwater elevation monitoring
P2-MW-03	A						Groundwater elevation monitoring
P2-MW-04	A		A		Qd		Perched 1,4-dioxane monitoring, SVOC evaluation
P2-SB-03	A						Groundwater elevation monitoring
P2-SB-06	A						Groundwater elevation monitoring
P2-SB-20	A						Groundwater elevation monitoring
P2-SB-37	SA						LNAPL Monitoring
PMW-01	SA						LNAPL Monitoring
PMW-02	SA						LNAPL Monitoring
PMW-03	SA						LNAPL Monitoring
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 sentinel
MW-14-56	A		A			SA	Lower 1,4-dioxane sentinel
MW-14-61	SA	SA	SA		Qd	SA	Lower 1,4-dioxane sentinel, SVOC Monitoring, PFAS Monitoring
MW-14-63	A		A				Lower 1,4-dioxane sentinel
MW-15-72	SA	A	SA		Qd	SA	Lower 1,4-dioxane monitoring
MW-15-73	A		A				Lower 1,4-dioxane monitoring
MW-16-74	SA		SA				Lower 1,4-dioxane sentinel
MW-16-75	SA		SA				Lower 1,4-dioxane sentinel
MW-16-76	A		A				Lower 1,4-dioxane sentinel
MW-16-77	SA		SA				Lower 1,4-dioxane sentinel

Table 1
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Revised May 2019
RACER Trust Plant 2 - Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	SVOCs	PFAS	
MW-16-78	SA		SA				Lower 1,4-dioxane sentinel
MW-16-79	SA		SA				Lower 1,4-dioxane sentinel
MW-16-80	SA		SA				Lower 1,4-dioxane monitoring
MW-16-81	SA	A	SA			SA	Lower 1,4-dioxane monitoring
MW-16-82	SA		SA				Lower 1,4-dioxane monitoring
MW-16-83	A		A				Lower 1,4-dioxane sentinel
MW-16-84	SA	A	SA				Lower 1,4-dioxane monitoring
MW-16-85	SA	A	SA				Lower 1,4-dioxane monitoring
MW-17-86	SA	SA	SA				Lower 1,4-dioxane monitoring
MW-19-115	SA		SA				Lower 1,4-dioxane monitoring
MW-19-116	SA		SA				Lower 1,4-dioxane monitoring
MW-19-117	SA		SA				Lower 1,4-dioxane monitoring
MW-19-120	SA	SA	SA				Lower 1,4-dioxane monitoring
MW-20-130	SA		SA			SA	PFAS Sentinel
PW-14-01	SA		SA				Lower 1,4-dioxane monitoring
PW-14-02	SA	B	SA				Lower 1,4-dioxane monitoring
TW-14-02	SA	B	SA				Lower 1,4-dioxane monitoring
Bedrock							
MW-12-01	A		A(1)				Bedrock sentinel
MW-12-02	A		A(1)				Bedrock sentinel
MW-12-05R	A		A(1)				Bedrock sentinel
MW-12-06	A		A(1)				Bedrock sentinel
MW-13-44	A		A(1)				Bedrock sentinel
MW-17-87	A		A(1)				Bedrock sentinel
MW-19-118S	A		A(1)				Bedrock sentinel
MW-19-118D	A		A(1)				Bedrock sentinel
MW-19-125	A		A(1)				Bedrock sentinel

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 2 - Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	SVOCs	PFAS	
Lansing Township Wells							
TWP-03	-		A(1)				Municipal Well
TWP-04	-		A(1)				Municipal Well
TWP-05	-		A(1)				Municipal Well

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 (2Q of each year)

B = Biennial (starting 2nd quarter of 2020)

Qd = Quadrennial

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 3 - Lansing, Michigan

Well	Gauging*	Analyte						Primary Function
		VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs	PFAS	
Plant 3								
Perched								
CH-14-RO	SA			A	A		SA	Metals monitoring
LMW-12-09	SA							Reduce LNAPL gauging to SA
LMW-12-10	SA							Reduce LNAPL gauging to SA
LMW-12-11	SA							Reduce LNAPL gauging to SA
MW-05(3)	A	A						VOC sentinel
MW-12-19	A							Groundwater elevation monitoring
MW-13-31	A							Groundwater elevation monitoring
MW-13-32	A			B		Qd		Groundwater elevation monitoring/ SVOC & Metals monitoring
MW-14-65	A							Groundwater elevation monitoring
MW-18-100	SA						SA	PFAS sentinel
MW-18-102	SA						SA	PFAS sentinel
MW-18-103	Q						Q	PFAS monitoring
MW-18-104	SA						SA	PFAS sentinel
MW-18-105	Q						Q	PFAS monitoring
MW-18-106	SA						SA	PFAS sentinel
MW-18-88	Q	A		A	A		Q	PFAS monitoring/ sentinel VOC & Metals
MW-18-89	Q						Q	PFAS monitoring
MW-18-90	Q						Q	PFAS monitoring
MW-18-91	Q						Q	PFAS monitoring
MW-18-92	SA						SA	PFAS sentinel
MW-18-95	Q						Q	PFAS monitoring
MW-18-96	SA						SA	PFAS sentinel
MW-18-98	Q						Q	PFAS sentinel
MW-18-99	Q						Q	PFAS sentinel
MW-19-107	SA						SA	PFAS sentinel
MW-19-108	SA						SA	PFAS sentinel
MW-19-110	SA						SA	PFAS sentinel

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 3 - Lansing, Michigan

Well	Gauging*	Analyte						Primary Function
		VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs	PFAS	
MW-19-111	SA						SA	PFAS sentinel
MW-19-112	SA						SA	PFAS sentinel
MW-19-113	SA						SA	PFAS sentinel
MW-19-114	SA						SA	PFAS sentinel
P3-SB-07	SA							Groundwater elevation monitoring
P3-SB-28	A					Qd		Groundwater elevation monitoring
UNK-10	A	A						VOC sentinel, SVOC evaluation
UNK-11	A	A				Qd		VOC monitoring/SVOCs
UNK-13	SA							Reduce LNAPL gauging to SA
UNK-14	SA							Reduce LNAPL gauging to SA
UNK-15	Q						Q	PFAS monitoring
Deep Overburden and Weathered Bedrock								
MW-02-01(3)	A							Groundwater elevation monitoring
MW-02-02(3)	A		A					Lower 1,4-dioxane sentinel
MW-02-03(3)	A							Groundwater elevation monitoring
MW-02-04(3)	SA		A	A			SA	Lower 1,4-dioxane, PFAS and metals sentinel
MW-04-03(3)	A							Groundwater elevation monitoring
MW-04-04(3)	A							Groundwater elevation monitoring
MW-12-20	A		B					Lower 1,4-dioxane sentinel
MW-12-21	SA	B	SA					Lower 1,4-dioxane monitoring
MW-13-22	A	B	A					Lower 1,4-dioxane monitoring
MW-13-23	A		A					Lower 1,4-dioxane sentinel
MW-13-24	A		A					Lower 1,4-dioxane sentinel
MW-13-25	SA		SA					Lower 1,4-dioxane monitoring
MW-13-26	A							Groundwater elevation monitoring
MW-13-27	A							Groundwater elevation monitoring
MW-13-29	A		A					Lower 1,4-dioxane monitoring
MW-13-30	A							Groundwater elevation monitoring
MW-13-34	SA	B	SA					Lower 1,4-dioxane monitoring

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 3 - Lansing, Michigan

Well	Gauging*	Analyte						Primary Function
		VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs	PFAS	
MW-13-40	A							Groundwater elevation monitoring
MW-13-41	A	B						Lower VOC sentinel
MW-13-46	SA		SA					Lower 1,4-dioxane monitoring
MW-13-48	SA	B	SA					Lower 1,4-dioxane monitoring
MW-13-49	A		A					Lower 1,4-dioxane
MW-14-64	A		A					Lower 1,4-dioxane sentinel
MW-15-71	A		B					Lower 1,4-dioxane sentinel
MW-18-101	SA						SA	Lower PFAS Sentinel
MW-18-93	SA						SA	Lower PFAS Sentinel
MW-18-94	SA		A				SA	Lower PFAS, 1,4-Dioxane Sentinel
MW-18-97	SA		A				SA	Lower PFAS Sentinel
MW-19	A	B	A					Lower 1,4-dioxane sentinel
MW-22	A							Metals sentinel
MW-23	SA						SA	PFAS sentinel
MW-91-2 (abandoned) / MW-91-2R	SA		A	A	A		SA	Lower 1,4-dioxane, PFAS and metals sentinel
MW-93-1	A							Groundwater elevation monitoring
PW-14-03	SA		SA					Lower 1,4-dioxane monitoring
Bedrock								
MW-04-02(3)	A							Groundwater elevation monitoring
MW-12-04	A							Groundwater elevation monitoring
MW-13-28	SA		A(1)					Bedrock sentinel
MW-13-37	A		A(1)					1,4-D sentinel
MW-13-38	A		A(1)					Bedrock sentinel
MW-13-39B	A							Groundwater elevation monitoring
MW-13-47	SA		A(1)					Bedrock sentinel
MW-19-119D	A		A(1)					Bedrock sentinel
MW-19-119S	A		A(1)					Bedrock sentinel
MW-88-1	A							Groundwater elevation monitoring

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 3 - Lansing, Michigan

Well	Gauging*	Analyte						Primary Function
		VOCs	1,4-Dioxane	Select Metals**	Hexavalent Chromium	SVOCs	PFAS	
MW-91-3	A							Bedrock sentinel
MW-91-4	A							Groundwater elevation monitoring
MW-91-5	SA		A(1)					Bedrock sentinel
MW-91-6	SA		A(1)					Bedrock sentinel

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

Revised May 2019
RACER Trust Plant 6 - Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		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 evaluation
MW-03-02	A						Groundwater elevation monitoring
MW-03-04	A						Groundwater elevation monitoring
MW-03-05	A	B	A				Perched 1,4-dioxane sentinel
MW-03-06	A	B	A				Perched 1,4-dioxane sentinel
MW-03-08	A	B					Perched VOC monitoring
MW-04-05(6)	A					A	Perched PFAS sentinel
MW-12-10R	A						Groundwater elevation monitoring
MW-12-11	A					A	PFAS Sentinel
MW-12-12	Q					Q	PFAS monitoring
MW-12-13	Q			A		Q	PFAS monitoring
MW-12-14	A						Groundwater elevation monitoring
MW-12-16	A						Boundary monitoring
MW-13-35							
MW-13-36R	Q			A		Q	PFAS monitoring
MW-14-66	A			B			Metals/PFAS sentinel
MW-14-67	Q			B		Q	Metals sentinel
MW-14-68	A						PFAS Sentinel
MW-14-69	A						PFAS Sentinel
MW-14-70	Q					Q	PFAS Sentinel
MW-20-131	Q	Q				Q	VOC monitoring
MW-20-132	Q	Q				Q	VOC monitoring
MW-21-133	Q					Q	PFAS Perimeter Monitoring
MW-21-134	Q					Q	PFAS Perimeter Monitoring
MW-21-135	Q					Q	PFAS Perimeter Monitoring
MW-21-136	Q					Q	PFAS Perimeter Monitoring
MW-21-137	Q					Q	PFAS Perimeter Monitoring
MW-21-138	Q					Q	PFAS Perimeter Monitoring

Table 1
Revised Interim Groundwater Monitoring Summary

Revised May 2019
RACER Trust Plant 6 - Lansing, Michigan

Well	Gauging*	Analyte					Primary Function
		VOCs	1,4-Dioxane	Select Metals**	SVOCs	PFAS	
MWBP-10-UST5-6	A	B		B			VOCs/metal monitoring
MWBP-11-UST1-4	A	B		B			VOCs/metal monitoring
MWBP-12-UST1-4	A	B		B	Qd		VOCs/metal monitoring, SVOC evaluation
P6-MW-01	A						Groundwater elevation monitoring
P6-SB-07	Q				Qd	Q	PFAS monitoring
P6-SB-18	A						Groundwater elevation monitoring
P6-SB-21	A						Groundwater elevation monitoring
P6-SB-35	A						Groundwater elevation monitoring
P6-SB-37	A						Groundwater elevation monitoring
Deep Overburden and Weathered Bedrock							
MW-13-52	A		A				Lower 1,4-dioxane sentinel
MW-13-53	A		A				Lower 1,4-dioxane sentinel
Bedrock							
MW-04-01(6)	A		B				Bedrock sentinel
MW-04-04R	A		B			A	Bedrock sentinel
MW-04-06R	A		B			A	Bedrock sentinel
MW-12-03	A						Groundwater elevation monitoring
MW-13-50	A		B				Bedrock sentinel

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.

Q = quarterly

SA = semi-annual

A = annual

B = biennial (starting 2nd quarter of 2020)

Qd = Quadrennial

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	CH-14-RO 06/09/21 CH-14-RO_060921 7-12	MW-02-04(3) 06/07/21 MW-02-04(3)_060721 76-86	MW-12-09 06/03/21 MW-12-09_060321 14-19	MW-12-12 03/04/21 MW-12-12_030421 13-18	MW-12-12 06/02/21 MW-12-12_060221 13-18	MW-12-13 03/04/21 MW-12-13_030421 18.5-23.5	MW-12-13 06/02/21 MW-12-13_060221 18.5-23.5	MW-12-15 03/05/21 MW-12-15_030521 18-23	MW-12-16 03/05/21 MW-12-16_030521 28-33	MW-12-18 06/03/21 MW-12-18_060321 28-33	MW-12-21 06/07/21 MW-12-21_060721 70-75	MW-13-22 03/03/21 MW-13-22_030321 89-94
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.08	6.78	7.02	7.3	7.54	7.35	7.41	6.69	6.81	7.08	6.85	6.63
Conductivity	- -	- -	mS/cm	0.69	6.83	1.52	0.362	0.56	0.62	0.72	0.86	1.2	1.66	1.42	1.51
Turbidity	- -	- -	NTU	0.02	79.9	50.2	13.6	1.68	6.97	1.2	7.48	11	3.41	2.81	1.55
Dissolved oxygen (DO)	- -	- -	mg/L	0.12	0.22	0.08	0.49	0.09	2.4	0.68	0.27	0.21	0.26	1.02	0.16
Temperature	- -	- -	Deg C	19.5	18.4	14	6	13.3	8	11.9	9.3	9.6	13	18.8	12.5
Oxidation reduction potential (ORP)	- -	- -	millivolts	116.6	-66.2	-53.9	37.9	9.7	23.1	60.1	-48.9	-77.9	21.1	-45.5	-109.7
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**167 [171]**	**86**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		CH-14-RO 06/09/21 CH-14-RO_060921	MW-02-04(3) 06/07/21 MW-02-04(3)_060721	MW-12-09 06/03/21 MW-12-09_060321	MW-12-12 03/04/21 MW-12-12_030421	MW-12-12 06/02/21 MW-12-12_060221	MW-12-13 03/04/21 MW-12-13_030421	MW-12-13 06/02/21 MW-12-13_060221	MW-12-15 03/05/21 MW-12-15_030521	MW-12-16 03/05/21 MW-12-16_030521	MW-12-18 06/03/21 MW-12-18_060321	MW-12-21 06/07/21 MW-12-21_060721	MW-13-22 03/03/21 MW-13-22_030321
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.4	<7.1	<7.4	<36	<7.1	<7.1 [<7.1]	NA	NA
4:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.4	<7.1	<7.4	<7.1	<7.1	<7.1 [<7.1]	NA	NA
6:2 FTS	- -	- -	ng/L	<360	<7.1	<7.1	<7.1	<7.4	<7.1	<7.4	<7.1	<7.1	<7.1 [<7.1]	NA	NA
8:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.4	<7.1	<7.4	<7.1	<7.1	<7.1 [<7.1]	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.4	<7.1	<7.4	<7.1	<7.1	<7.1 [<7.1]	NA	NA
ADONA	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.4	<7.1	<7.4	<7.1	<7.1	<7.1 [<7.1]	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.7	<3.6	<3.7	<3.6	<18	<3.6 [<3.6]	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.7	<3.6	<3.7	<3.6	<3.6	<3.6 [<3.6]	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.7	<3.6	<3.7	<3.6	<3.6	<3.6 [<3.6]	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	**77.9**	**3.2**	**1.9**	<1.8	**1.1 J**	<1.8	**1.5 J**	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**18**	**13.7**	**6.5**	**39.8**	**49**	**37.3**	**31.2**	**5.9**	**5.5**	**4.5 [4.3]**	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<1.8	<1.8	<1.8	**14.2**	**16.4**	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<8.9	<1.8	<1.8 [<1.8]	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	**286**	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**27.1**	<1.8	**5.5**	**38.4**	**56.8**	**16.6**	**13.5**	**1.2 J**	**1.8**	<1.8 [<1.8]	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**1,160**	<1.8	**3.6**	**3.4**	**1.7 J**	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**31.5**	**2.3**	**5.1**	**77.9**	**123**	**70.9**	**56.4**	**2.5**	**5.1**	<1.8 [<1.8]	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	**0.96 J**	<1.8	<1.8	**9.3**	**8.5**	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<19	<3.6	<3.7	<18	<3.6	<3.6 [<3.6]	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**8,620**	<1.8	**1.4 J**	**46.9**	**48.2**	<1.8	**1.3 J**	<1.8	**0.92 J**	<1.8 [<1.8]	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**57.8**	<1.8	**12.9**	**78.7**	**91.4**	**2.8**	**1.6 J**	**1.5 J**	**3**	<1.8 [<1.8]	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	**215**	<1.8	**0.97 J**	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**13.5**	**5.4**	**5.2**	**69.1**	**94.2**	**46.9**	**43.2**	**2.6**	**5.1 J**	<1.8 [<1.8]	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<8.9	<8.9	<1.8 [<1.8]	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<8.9	<1.8	<1.8 [<1.8]	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8 [<1.8]	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-13-22 06/07/21 MW-13-22_060721 89-94	MW-13-29 06/08/21 MW-13-29_060821 68-73	MW-13-34 03/03/21 MW-13-34_030321 74-79	MW-13-34 06/07/21 MW-13-34_060721 74-79	MW-13-36R 03/04/21 MW-13-36R_030421 5.5-10.5	MW-13-36R 06/02/21 MW-13-36R_060221 5.5-10.5	MW-13-43 06/03/21 MW-13-43_060321 72-77	MW-13-45 06/03/21 MW-13-45_060321 72-77	MW-13-46 06/07/21 MW-13-46_060721 68-73	MW-13-48 06/07/21 MW-13-48_060721 65-70	MW-14-56 06/03/21 MW-14-56_060321 71-76	MW-14-58 06/03/21 MW-14-58_060321 22-27
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.72	6.37	7.61	6.99	11.83	12.07	7	6.82	6.56	6.8	6.71	6.73
Conductivity	- -	- -	mS/cm	1.92	3.2	1.44	1.81	0.65	1.27	2.66	1.34	2.28	2.35	5.25	4.13
Turbidity	- -	- -	NTU	0.02	27.3	4.02	309	7.47	2.29	728	8.44	10	0.02	9.39	1.21
Dissolved oxygen (DO)	- -	- -	mg/L	0.34	0.94	6.61	0.12	0.17	0.1	7.36	0.32	0.23	1.03	0.76	0.1
Temperature	- -	- -	Deg C	21.4	19.9	14	14	4.6	13.1	21.3	17.5	16.8	20.1	19.4	14.9
Oxidation reduction potential (ORP)	- -	- -	millivolts	-77.8	50.2	19.7	-70.1	-62.4	60.2	312.6	-52.1	-52.2	-100.5	-49.9	-42.1
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**45**	**26**	**127**	**86**	NA	NA	<1	**42**	<1	**114**	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-13-22 06/07/21 MW-13-22_060721	MW-13-29 06/08/21 MW-13-29_060821	MW-13-34 03/03/21 MW-13-34_030321	MW-13-34 06/07/21 MW-13-34_060721	MW-13-36R 03/04/21 MW-13-36R_030421	MW-13-36R 06/02/21 MW-13-36R_060221	MW-13-43 06/03/21 MW-13-43_060321	MW-13-45 06/03/21 MW-13-45_060321	MW-13-46 06/07/21 MW-13-46_060721	MW-13-48 06/07/21 MW-13-48_060721	MW-14-56 06/03/21 MW-14-56_060321	MW-14-58 06/03/21 MW-14-58_060321
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	**0.06**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	**0.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	<7.1 [<7.1]	<7.1 [<7.1]	NA	NA	NA	NA	<7.1	<7.1
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	<7.1 [<7.1]	<7.1 [<7.1]	NA	NA	NA	NA	<7.1	<7.1
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	<7.1 [<7.1]	<7.1 [<7.1]	NA	NA	NA	NA	<7.1	<7.1
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	<7.1 [<7.1]	<7.1 [<7.1]	NA	NA	NA	NA	<7.1	<7.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	<7.1 [<7.1]	<7.1 [<7.1]	NA	NA	NA	NA	<7.1	<7.1
ADONA	- -	- -	ng/L	NA	NA	NA	NA	<7.1 [<7.1]	<7.1 [<7.1]	NA	NA	NA	NA	<7.1	<7.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	<3.6 [<3.6]	<3.6 [<3.6]	NA	NA	NA	NA	<3.6	<36
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	**4.6 [5]**	**6 [6.4]**	NA	NA	NA	NA	<3.6	<3.6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	**2.9 J [2.8 J]**	**3.6 [3.8]**	NA	NA	NA	NA	<3.6	<3.6
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	**3.6 [2.9]**	**1.9 [2.1]**	NA	NA	NA	NA	<1.8	<1.8
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	**30.9 [30.3]**	**38.7 [33.6]**	NA	NA	NA	NA	**6.2**	**7.4**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	**1.5 J [<1.8]**	NA	NA	NA	NA	<1.8	<1.8
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	**20.9 [20.4]**	**24.5 [24.4]**	NA	NA	NA	NA	<1.8	<1.8
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	**41.7 [43.2]**	**34 [33.8]**	NA	NA	NA	NA	<1.8	**2.3**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	**2.2 [5.5]**	**1.1 J [1.4 J]**	NA	NA	NA	NA	<1.8	**0.99 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	**38.6 [37.5]**	**29.2 [29.9]**	NA	NA	NA	NA	**1.4 J**	**4.4**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	**16.5 [15.6]**	**15 [15.7]**	NA	NA	NA	NA	<1.8	<1.8
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	**6.6 [6.1]**	**6.2 [6.1]**	NA	NA	NA	NA	<3.6	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	**47.9 [44.7]**	**48.6 [50.7]**	NA	NA	NA	NA	<1.8	<1.8
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	**81.1 [79.6]**	**70.1 [70.3]**	NA	NA	NA	NA	<1.8	**4.1**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	**34.4 [33.9]**	**38.8 [30.2]**	NA	NA	NA	NA	**9.1**	**4.4**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	<1.8 [<1.8]	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	**<1.8 [1 J]**	<1.8 [<1.8]	NA	NA	NA	NA	<1.8	<1.8

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-14-59 06/03/21 MW-14-59_060321 12-17	MW-14-60 06/03/21 MW-14-60_060321 15-20	MW-14-61 03/02/21 MW-14-61_030221 70-75	MW-14-61 06/02/21 MW-14-61_060221 70-75	MW-14-62 06/03/21 MW-14-62_060321 12-17	MW-14-67 03/04/21 MW-14-67_030421 13-18	MW-14-67 06/02/21 MW-14-67_060221 13-18	MW-14-70 03/04/21 MW-14-70_030421 16-21	MW-14-70 06/02/21 MW-14-70_060221 16-21	MW-15-72 03/02/21 MW-15-72_030221 63-68	MW-15-72 06/02/21 MW-15-72_060221 63-68	MW-16-74 03/03/21 MW-16-74_030321 66-71
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.32	7.36	6.83	6.84	11.31	7.28	7.37	7.31	7.31	6.89	6.96	6.87
Conductivity	- -	- -	mS/cm	0.68	0.8	1.46	1.77	0.437	0.99	1.22	0.89	1.05	1.02	0.97	1.63
Turbidity	- -	- -	NTU	2.12	1.33	1100	4.58	1.3	6.62	1.71	2.27	1.47	4.02	1.8	277
Dissolved oxygen (DO)	- -	- -	mg/L	0.1	0.1	1.85	1.4	0.1	1.09	0.09	0.65	0.14	0.19	4.94	0.43
Temperature	- -	- -	Deg C	14.6	15	10.4	20.6	16.4	7.5	13.8	6.4	12	11.5	19.6	12
Oxidation reduction potential (ORP)	- -	- -	millivolts	-28.8	-76.9	-57.1	113.1	-297.8	-39	66.3	13.2	31.1	-98.6	-77.4	-110.1
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	**21**	**9**	NA	NA	NA	NA	NA	**240 Y**	**15**	<1
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	<25	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	<50	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	<50	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	<50	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	<90	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	<1	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-14-59 06/03/21 MW-14-59_060321	MW-14-60 06/03/21 MW-14-60_060321	MW-14-61 03/02/21 MW-14-61_030221	MW-14-61 06/02/21 MW-14-61_060221	MW-14-62 06/03/21 MW-14-62_060321	MW-14-67 03/04/21 MW-14-67_030421	MW-14-67 06/02/21 MW-14-67_060221	MW-14-70 03/04/21 MW-14-70_030421	MW-14-70 06/02/21 MW-14-70_060221	MW-15-72 03/02/21 MW-15-72_030221	MW-15-72 06/02/21 MW-15-72_060221	MW-16-74 03/03/21 MW-16-74_030321
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	**0.76**	**0.23**	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	**1.0**	**0.2**	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	<7.4	<7.1	NA	<7.4	<7.1	<7.1	<7.1	<7.1	<7.4	NA	<7.1	NA
4:2 FTS	- -	- -	ng/L	<7.4	<7.1	NA	<7.4	<7.1	<7.1	<7.1	<7.1	<7.4	NA	<7.1	NA
6:2 FTS	- -	- -	ng/L	<7.4	<7.1	NA	<7.4	**21.1**	<7.1	<7.1	<7.1	<7.4	NA	<7.1	NA
8:2 FTS	- -	- -	ng/L	<7.4	<7.1	NA	<7.4	**5.9 J**	<7.1	<7.1	<7.1	<7.4	NA	<7.1	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	<7.4	<7.1	NA	<7.4	<7.1	<7.1	<7.1	<7.1	<7.4	NA	<7.1	NA
ADONA	- -	- -	ng/L	<7.4	<7.1	NA	<7.4	<7.1	<7.1	<7.1	<7.1	<7.4	NA	<7.1	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	<3.7	<3.6	NA	<3.7	<3.6	<18	<3.6	<18	<3.7	NA	<3.6	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<3.7	<3.6	NA	<3.7	<3.6	<3.6	<3.6	<3.6	<3.7	NA	<3.6	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<3.7	<3.6	NA	<3.7	<3.6	<3.6	<3.6	<3.6	<3.7	NA	<3.6	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	<1.9	<1.8	NA	<1.9	**1.6 J**	<8.9	**1.8**	**5.6 J**	**5.6**	NA	**6.2**	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**7.9**	**16.1**	NA	<3.7	**22.8**	**60.5**	**58.9**	**57.3**	**50.1**	NA	**5.8**	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	<1.8	<1.8	<1.8	<1.8	<1.9	NA	<1.8	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<1.9	**2.1**	NA	<1.9	**2.3**	**3.8**	**2.4**	<1.8	<1.9	NA	<1.8	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	<1.8	<1.8	<1.8	<1.8	<1.9	NA	<1.8	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	**1.7 J**	**1.6 J**	<1.8	<1.8	<1.9	NA	<1.8	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**2.6**	**15.3**	NA	<1.9	**18.8**	**39.1**	**34.7**	**73.3**	**63.9**	NA	<1.8	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**0.97 J**	**6.9**	NA	<1.9	**6.2**	<1.8	<1.8	**10.8**	**2.5**	NA	<1.8	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**4.2**	**12.2**	NA	<1.9	**17**	**106**	**91.7**	**124**	**99.6**	NA	**2.5**	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	<1.8	<1.8	<1.8	<1.8	<1.9	NA	<1.8	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<1.9	**3.9**	NA	<1.9	**7.5**	**1.7 J**	**0.96 J**	<1.8	<1.9	NA	<1.8	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.7	<3.6	NA	<3.7	**4.4**	<3.6	<3.6	<3.6	<3.7	NA	<3.6	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	<1.9	**12.2**	NA	<1.9	**74.9**	**5.2**	**4.1**	<1.8	**1.1 J**	NA	<1.8	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**8.8**	**22.1**	NA	<1.9	**47.4**	**25.9**	**18.1**	**51.9**	**38.5**	NA	<1.8	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	**1.4 J**	<8.9	<1.8	**6.4 J**	<1.9	NA	<1.8	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**3.8**	**12.9**	NA	**1.3 J**	**15.5**	**78.5**	**77.6**	**154**	**139**	NA	**4.8**	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	<1.8	<1.8	<1.8	<1.8	<1.9	NA	<1.8	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	<1.8	<1.8	<1.8	<1.8	<1.9	NA	<1.8	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<1.9	<1.8	NA	<1.9	<1.8	<1.8	<1.8	<1.8	<1.9	NA	<1.8	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-16-74 06/02/21 MW-16-74_060221 66-71	MW-16-75 06/03/21 MW-16-75_060321 66-71	MW-16-77 06/04/21 MW-16-77_060421 66-71	MW-16-78 03/03/21 MW-16-78_030321 68-73	MW-16-78 06/02/21 MW-16-78_060221 68-73	MW-16-79 03/03/21 MW-16-79_030321 68-73	MW-16-79 06/03/21 MW-16-79_060321 68-73	MW-16-80 06/04/21 MW-16-80_060421 68-73	MW-16-81 03/03/21 MW-16-81_030321 70-75	MW-16-81 06/03/21 MW-16-81_060321 70-75	MW-16-82 03/03/21 MW-16-82_030321 70-75	MW-16-82 06/04/21 MW-16-82_060421 70-75
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.94	7.03	7.06	6.94	6.84	7.15	6.91	6.8	6.54	6.71	7.08	7.18
Conductivity	- -	- -	mS/cm	2.18	1.98	1.96	1.3	1.79	0.67	0.99	2.21	2.69	3.15	0.95	1.14
Turbidity	- -	- -	NTU	162	9.52	3.42	1.31	1.53	1.18	20.1	1.81	23.1	0.02	2.01	0.02
Dissolved oxygen (DO)	- -	- -	mg/L	0.37	0.34	0.46	0.23	0.67	0.2	0.75	6.18	0.2	0.52	0.29	0.34
Temperature	- -	- -	Deg C	26.2	16.2	12.6	11.6	26.8	12.3	23.8	12.4	14.1	19.1	13.2	21.8
Oxidation reduction potential (ORP)	- -	- -	millivolts	-66.3	-78.5	-56.9	-32.6	-79	-42.1	-80.9	-68.5	-58	-23.9	-62.6	-114.2
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	<1	<1	<1	<1	<1	<1	<1	**23**	**560 Y [570 Y]**	**490 Y [500 Y]**	<1	<1
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
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2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID:	P201	P201 Groundwater		MW-16-74	MW-16-75	MW-16-77	MW-16-78	MW-16-78	MW-16-79	MW-16-79	MW-16-80	MW-16-81	MW-16-81	MW-16-82	MW-16-82
Date Collected:				06/02/21	06/03/21	06/04/21	03/03/21	06/02/21	03/03/21	06/03/21	06/04/21	03/03/21	06/03/21	03/03/21	06/04/21
Sample Name:	Residential	Surface Water		MW-16-74_060221	MW-16-75_060321	MW-16-77_060421	MW-16-78_030321	MW-16-78_060221	MW-16-79_030321	MW-16-79_060321	MW-16-80_060421	MW-16-81_030321	MW-16-81_060321	MW-16-82_030321	MW-16-82_060421
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1 [<7.1]	NA	NA
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1 [<7.1]	NA	NA
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1 [<7.1]	NA	NA
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1 [<7.1]	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1 [<7.1]	NA	NA
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1 [<7.1]	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6 [<3.6]	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6 [<3.6]	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6 [<3.6]	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.8 [4]**	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.7 J [1.5 J]**	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6 [<3.6]	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4.9 [4.1]**	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8 [<1.8]	NA	NA

See notes on last page.

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2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-16-84 03/02/21 MW-16-84_030221 72-77	MW-16-84 06/03/21 MW-16-84_060321 72-77	MW-16-85 06/04/21 MW-16-85_060421 74-79	MW-17-86 03/03/21 MW-17-86_030321 73-78	MW-17-86 06/03/21 MW-17-86_060321 73-78	MW-18-88 03/04/21 MW-18-88_030421 6-11	MW-18-88 06/09/21 MW-18-88_060921 6-11	MW-18-89 03/04/21 MW-18-89_030421 7-12	MW-18-89 06/08/21 MW-18-89_060821 7-12	MW-18-90 03/04/21 MW-18-90_030421 15-20	MW-18-90 06/08/21 MW-18-90_060821 15-20	MW-18-91 03/04/21 MW-18-91_030421 7-12
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.89	7.2	7.27	6.83	6.97	6.99	6.89	7.99	7.98	12.53	12.11	7.67
Conductivity	- -	- -	mS/cm	0.97	1.1	0.69	1.34	1.72	0.617	0.64	0.5	0.65	1.64	1.78	0.713
Turbidity	- -	- -	NTU	14.2	5.77	2.41	4.8	0.02	7.21	0.02	1.3	2.01	3.77	2.71	6.73
Dissolved oxygen (DO)	- -	- -	mg/L	1.69	0.51	0.27	0.2	0.28	0.1	0.1	0.21	0.13	0.58	0.1	0.1
Temperature	- -	- -	Deg C	9.1	21.1	15.9	11.2	22.2	2.9	17.9	6	15.7	9.3	14	6.2
Oxidation reduction potential (ORP)	- -	- -	millivolts	-43.1	-57.8	-90.9	-111.2	-89.8	227.7	111.4	111.6	-75.3	-14.3	-255.9	186.1
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**66**	**15**	**4**	**79**	**69 [70]**	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	<25 [<25]	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	<50 [<50]	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	<50 [<50]	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	<50 [<50]	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	<2 [<2]	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	<10 [<10]	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	<5 [<5]	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	<90 [<90]	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	<1 [<1]	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	<2 [<2]	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-16-84 03/02/21 MW-16-84_030221	MW-16-84 06/03/21 MW-16-84_060321	MW-16-85 06/04/21 MW-16-85_060421	MW-17-86 03/03/21 MW-17-86_030321	MW-17-86 06/03/21 MW-17-86_060321	MW-18-88 03/04/21 MW-18-88_030421	MW-18-88 06/09/21 MW-18-88_060921	MW-18-89 03/04/21 MW-18-89_030421	MW-18-89 06/08/21 MW-18-89_060821	MW-18-90 03/04/21 MW-18-90_030421	MW-18-90 06/08/21 MW-18-90_060821	MW-18-91 03/04/21 MW-18-91_030421
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	**0.06**	**0.09**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	**0.5**	**0.4**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	NA	**1.8**	**2.3**	<1.8	**1.5 J**	<1.8	<1.8	<1.8
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	**8.9**	**11.2**	**11.7**	**14.8**	**10.8**	**12.4**	**10.3**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	<1.8	**2**	<1.8	<1.8	**7.2**
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	**1.3 J**	**1.5 J**	**1.7 J**	**1.7 J**	**1 J**
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	**2.4**	**2.2**	**4.6**	**4**	**28.9**	**34.4**	**2.7**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	**6.5**	**4.9**	**4.7**	**4.5**	**3.5**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	NA	**2.9**	**3.7**	**6.1**	**4.6**	**19.6**	**20.2**	**4.6**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	**0.99 J**	**1 J**	**8.7**	**8.3**	**8.9**	**5.4**	**4.3**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	**1.5 J**	**1.6 J**	**1.5 J**	**1.5 J**	**1.1 J**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<3.6	<3.6	<3.6	<3.6	<3.6	<18	<18
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	**117**	**219**	**173**	**161**	**998**	**910**	**53.6**
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	NA	**5.3**	**7**	**16.6**	**12.5**	**17.2**	**15.4**	**9**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	**0.92 J**	<1.8	**1.7 J**	<1.8	**5.1**	**2.8**	**2.9**
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	**7.2**	**5.8**	**5**	<1.8	**3**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	<1.8	<1.8	<1.8	<8.9	<8.9
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

See notes on last page.

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

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-18-91 06/09/21 MW-18-91_060921 7-12	MW-18-92 06/09/21 MW-18-92_060921 23-28	MW-18-93 06/07/21 MW-18-93_060721 77.5-82.5	MW-18-94 06/07/21 MW-18-94_060721 72-77	MW-18-95 03/04/21 MW-18-95_030421 4.5-9.5	MW-18-95 06/08/21 MW-18-95_060821 4.5-9.5	MW-18-97 06/08/21 MW-18-97_060821 85-90	MW-18-98 03/05/21 MW-18-98_030521 7-12	MW-18-98 06/08/21 MW-18-98_060821 7-12	MW-18-99 03/05/21 MW-18-99_030521 9-14	MW-18-99 06/08/21 MW-18-99_060821 9-14	MW-18-100 06/08/21 MW-18-100_060821 8-13
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.63	6.91	7.36	7.27	7.39	7.08	7.1	7.2	7.1	7.76	7.87	7.4
Conductivity	- -	- -	mS/cm	0.65	1.12	0.58	2.82	0.559	0.56	1.75	0.406	1.2	1.56	2.13	0.89
Turbidity	- -	- -	NTU	1.94	0.02	0.02	0.02	9.34	3.21	0.02	1.2	1.24	1.38	1.09	18.8
Dissolved oxygen (DO)	- -	- -	mg/L	0.2	0.6	0.32	0.15	5.19	0.27	0.55	0.88	0.12	0.14	0.09	2.1
Temperature	- -	- -	Deg C	19.3	14.7	19.1	18.7	3.5	19.8	27.2	4.3	15.7	6.7	15.3	19.2
Oxidation reduction potential (ORP)	- -	- -	millivolts	-175.4	35.6	-201	-331.4	258.1	45.4	-149.9	14.5	-54.5	11.4	-156.7	110
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-18-91 06/09/21 MW-18-91_060921	MW-18-92 06/09/21 MW-18-92_060921	MW-18-93 06/07/21 MW-18-93_060721	MW-18-94 06/07/21 MW-18-94_060721	MW-18-95 03/04/21 MW-18-95_030421	MW-18-95 06/08/21 MW-18-95_060821	MW-18-97 06/08/21 MW-18-97_060821	MW-18-98 03/05/21 MW-18-98_030521	MW-18-98 06/08/21 MW-18-98_060821	MW-18-99 03/05/21 MW-18-99_030521	MW-18-99 06/08/21 MW-18-99_060821	MW-18-100 06/08/21 MW-18-100_060821
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1 [<7.1]	<7.1 [<7.1]	<7.1 [<7.1]	<7.1	<7.1	<7.1	<7.1	<7.1
4:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1 [<7.1]	<7.1 [<7.1]	<7.1 [<7.1]	<7.1	<7.1	<7.1	<7.1	<7.1
6:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1 [<7.1]	<7.1 [<7.1]	<7.1 [<7.1]	<7.1	<7.1	<7.1	<7.1	<7.1
8:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1 [<7.1]	<7.1 [<7.1]	<7.1 [<7.1]	<7.1	<7.1	<7.1	<7.1	<7.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1 [<7.1]	<7.1 [<7.1]	<7.1 [<7.1]	<7.1	<7.1	<7.1	<7.1	<7.1
ADONA	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1 [<7.1]	<7.1 [<7.1]	<7.1 [<7.1]	<7.1	<7.1	<7.1	<7.1	<7.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6 [<3.6]	<3.6 [<3.6]	<3.6 [<3.6]	<3.6	<3.6	<3.6	<3.6	<3.6
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6 [<3.6]	<3.6 [<3.6]	<3.6 [<3.6]	<3.6	<3.6	<3.6	<3.6	<3.6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6 [<3.6]	<3.6 [<3.6]	<3.6 [<3.6]	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	**1.6 J**	<1.8	<1.8	<1.8	**5.9 [7.5]**	**1.7 J [2]**	**<1.8 [1.6 J]**	**3.5**	**1.8**	<1.8	<1.8	**1.2 J**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**8.8**	<3.6	<3.6	**3.1 J**	**15.9 [14.3]**	**7.4 [7.2]**	**2.6 J [8.5]**	**31.9**	**16.7**	**21.7**	**22**	**9.7**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	**6.9**	<1.8	<1.8	<1.8	**<1.8 [2.9]**	**<1.8 [0.91 J]**	<1.8 [<1.8]	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	**1.4 J**	<1.8	<1.8	<1.8	<1.8 [<1.8]	<1.8 [<1.8]	<1.8 [<1.8]	<1.8	<1.8	**1.6 J**	**1.5 J**	<1.8
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8 [<1.8]	<1.8 [<1.8]	<1.8 [<1.8]	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	**1.2 J [<1.8]**	<1.8 [<1.8]	<1.8 [<1.8]	**1.4 J**	**0.9 J**	**3.1**	**1.8**	<1.8
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	**3.1**	<1.8	<1.8	<1.8	**2.5 [2.8]**	<1.8 [<1.8]	**<1.8 [0.95 J]**	**8.4**	**5.2**	**4.5**	**3.7**	**1.8**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	**2**	<1.8	<1.8	<1.8	**2.3 [2.2]**	**0.94 J [1.4 J]**	<1.8 [<1.8]	**1.7 J**	**1.1 J**	**3.2**	**2.4**	**2.6**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**3.6**	<1.8	<1.8	<1.8	**3.9 [4]**	<1.8 [<1.8]	**1.6 J [1.2 J]**	**15**	**7.5**	**3.9**	**5.3**	**4.1**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8 [<1.8]	<1.8 [<1.8]	<1.8 [<1.8]	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorononanoic acid (PFNA)	6	- -	ng/L	**1.2 J**	<1.8	<1.8	<1.8	**0.92 J [1.1 J]**	**1.2 J [1 J]**	<1.8 [<1.8]	**1 J**	**1.3 J**	**1.7 J**	**1.7 J**	<1.8
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6 [<18]	<3.6 [<3.6]	<3.6 [<3.6]	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**53.4**	<1.8	<1.8	<1.8	**59.4 [54.5]**	**43.5 [42.8]**	**2.4 [2.2]**	**70.6**	**79.7**	**109**	**110**	<1.8
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**8.1**	<1.8	<1.8	<1.8	**6.2 [5.9]**	**4 [3.9]**	**0.91 J [1.2 J]**	**19**	**13.3**	**8.7**	**7**	**3.5**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8 [<1.8]	<1.8 [<1.8]	<1.8 [<1.8]	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**4.1**	<1.8	**1.4 J**	<1.8	**4.7 [4.1]**	<1.8 [<1.8]	**1.7 J [2]**	**10.5**	**6.9**	<1.8	<1.8	**3**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8 [<8.9]	<1.8 [<1.8]	<1.8 [<1.8]	<8.9	<1.8	<1.8	<1.8	<1.8
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8 [<1.8]	<1.8 [<1.8]	<1.8 [<1.8]	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8 [<1.8]	<1.8 [<1.8]	<1.8 [<1.8]	<1.8	<1.8	<1.8	<1.8	<1.8

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-18-101 06/07/21 MW-18-101_060721 80-85	MW-18-102 06/08/21 MW-18-102_060821 10-15	MW-18-103 03/04/21 MW-18-103_030421 5-10	MW-18-103 06/09/21 MW-18-103_060921 5-10	MW-18-104 06/08/21 MW-18-104_060821 5-10	MW-18-105 03/04/21 MW-18-105_030421 6-11	MW-18-105 06/09/21 MW-18-105_060921 6-11	MW-18-106 06/08/21 MW-18-106_060821 5-10	MW-19-107 06/09/21 MW-19-107_060921 23-28	MW-19-108 06/09/21 MW-19-108_060921 23-28	MW-19-111 06/09/21 MW-19-111_060921 20-25	MW-19-112 06/08/21 MW-19-112_060821 9-14
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.79	7.07	6.95	6.86	7.08	7.12	6.91	6.82	6.81	6.75	6.71	6.54
Conductivity	- -	- -	mS/cm	1.29	0.67	0.43	0.77	0.66	0.42	0.64	0.68	0.85	1.13	1.25	6.42
Turbidity	- -	- -	NTU	0.02	6.45	1.22	8.42	0.02	2.01	0.02	8.99	0.02	1.45	1.24	1.52
Dissolved oxygen (DO)	- -	- -	mg/L	0.32	0.32	2.87	0.39	2.82	1.4	0.35	0.61	0.13	0.1	2.93	0.1
Temperature	- -	- -	Deg C	19.3	15.3	5.1	14.4	16.7	5.2	14.3	14.9	14.6	11.9	12.3	17.4
Oxidation reduction potential (ORP)	- -	- -	millivolts	-313	12.9	48.3	144	79	41	181.1	129	-62	24.5	103.1	-101.4
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID:	P201	P201 Groundwater		MW-18-101	MW-18-102	MW-18-103	MW-18-103	MW-18-104	MW-18-105	MW-18-105	MW-18-106	MW-19-107	MW-19-108	MW-19-111	MW-19-112
Date Collected:				06/07/21	06/08/21	03/04/21	06/09/21	06/08/21	03/04/21	06/09/21	06/08/21	06/09/21	06/09/21	06/09/21	06/08/21
Sample Name:	Residential	Surface Water		MW-18-101_060721	MW-18-102_060821	MW-18-103_030421	MW-18-103_060921	MW-18-104_060821	MW-18-105_030421	MW-18-105_060921	MW-18-106_060821	MW-19-107_060921	MW-19-108_060921	MW-19-111_060921	MW-19-112_060821
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
4:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
6:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
8:2 FTS	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
ADONA	- -	- -	ng/L	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	<1.8	<1.8	**4.5**	**9.4**	<1.8	**1.8**	**3.1**	<1.8	**2**	**1.3 J**	**1.5 J**	<1.8
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**3.1 J**	<3.6	<3.6	**6.1**	<3.6	**2 J**	**2 J**	<3.6	**3.2 J**	**1.9 J**	**3 J**	**2.7 J**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	**1.4 J**	<1.8
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	<1.8	<1.8	**19.5**	**48.7**	<1.8	**1.3 J**	<1.8	**1.7 J**	**5.1**	**1.5 J**	**1.6 J**	<1.8
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**1.1 J**	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	**1 J**	**1.7 J**	**1.7 J**	**1.5 J**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	<1.8	<1.8	**2.3**	**5.3**	<1.8	**7.2**	**6.7**	**3.7**	**2.5**	**7.1**	<1.8	<1.8
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	**3.4**	**4.8**	**5.5**	<1.8
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<1.8	<1.8	**3.4**	**8.1**	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	**5.5**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-19-114 06/08/21 MW-19-114_060821 6-11	MW-19-115 03/03/21 MW-19-115_030321 72.5-77.5	MW-19-115 06/04/21 MW-19-115_060421 72.5-77.5	MW-19-116 03/03/21 MW-19-116_030321 65-70	MW-19-116 06/04/21 MW-19-116_060421 65-70	MW-19-117 03/03/21 MW-19-117_030321 54-59	MW-19-117 06/04/21 MW-19-117_060421 54-59	MW-19-120 03/02/21 MW-19-120_030221 66-71	MW-19-120 06/04/21 MW-19-120_060421 66-71	MW-19-121 03/02/21 MW-19-121_030221 66-71	MW-19-121 06/04/21 MW-19-121_060421 66-71	MW-19-122 03/02/21 MW-19-122_030221 59-64
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.08	6.91	7.04	6.95	7.04	7.04	6.99	6.79	6.91	7.57	7.26	6.57
Conductivity	- -	- -	mS/cm	0.55	1.47	2.43	1.77	1.57	1.08	1.1	1.52	2.04	1.49	1.58	4.07
Turbidity	- -	- -	NTU	002	4.67	1.72	7.26	0.02	23.5	14.4	19.3	0.02	219	0.02	421
Dissolved oxygen (DO)	- -	- -	mg/L	0.17	0.6	1.08	0.22	0.3	1.22	0.16	0.16	0.29	2.13	4.36	0.38
Temperature	- -	- -	Deg C	15.9	7.9	23	10.6	20.4	13.6	19.7	10.8	17.9	10.6	17.9	9.4
Oxidation reduction potential (ORP)	- -	- -	millivolts	102	-77.5	-61.9	-27.4	-80.9	-73.5	-126.8	-56.9	45.5	88.8	103.8	88.2
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	**2**	**2**	**72 [71]**	**69**	<1	<1	**73**	**49**	<1	<1	**25**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<90	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<1	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-19-114 06/08/21 MW-19-114_060821	MW-19-115 03/03/21 MW-19-115_030321	MW-19-115 06/04/21 MW-19-115_060421	MW-19-116 03/03/21 MW-19-116_030321	MW-19-116 06/04/21 MW-19-116_060421	MW-19-117 03/03/21 MW-19-117_030321	MW-19-117 06/04/21 MW-19-117_060421	MW-19-120 03/02/21 MW-19-120_030221	MW-19-120 06/04/21 MW-19-120_060421	MW-19-121 03/02/21 MW-19-121_030221	MW-19-121 06/04/21 MW-19-121_060421	MW-19-122 03/02/21 MW-19-122_030221
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	<0.5	<0.5	**2.2**	**8.8**	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.02**	**0.02**	**0.87**	**1.66**	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	**0.5**	**0.4**	**0.4**	**0.3**	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	<7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**2.6 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-19-122 06/03/21 MW-19-122_060321 59-64	MW-19-123 03/02/21 MW-19-123_030221 66-71	MW-19-123 06/07/21 MW-19-123_060721 66-71	MW-19-124 03/02/21 MW-19-124_030221 65-70	MW-19-124 06/03/21 MW-19-124_060321 65-70	MW-20-126 03/03/21 MW-20-126_030321 69-74	MW-20-126 06/03/21 MW-20-126_060321 69-74	MW-20-127 03/02/21 MW-20-127_030221 72-77	MW-20-127 06/03/21 MW-20-127_060321 72-77	MW-20-128 03/02/21 MW-20-128_030221 65-70	MW-20-128 06/02/21 MW-20-128_060221 65-70	MW-20-129 03/02/21 MW-20-129_030221 64-69
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.64	6.67	6.74	6.81	6.78	6.86	7.02	6.81	6.74	7.74	7.59	6.91
Conductivity	- -	- -	mS/cm	4.09	2.18	1.77	2.93	2.89	3.03	3.18	3.22	3.25	1.99	2.69	3.12
Turbidity	- -	- -	NTU	145	9.74	1.7	44.8	0.02	18.9	68.8	8.09	0.02	401	181	1.9
Dissolved oxygen (DO)	- -	- -	mg/L	1.2	5.49	6.03	0.17	0.12	1.04	6.7	4	0.23	9.69	7.95	0.48
Temperature	- -	- -	Deg C	17.9	8.2	14.1	8.7	18.7	12.3	16.3	1.7	16.5	13.6	17.7	9
Oxidation reduction potential (ORP)	- -	- -	millivolts	52.7	105.2	116.3	-5.5	-43.4	58.6	65.3	43.6	-34.4	63.9	120.9	69
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**37**	**58**	**50**	**182**	**173**	**220 Y**	**156**	**138**	**140**	**9**	**4**	**108**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID:	P201	P201 Groundwater		MW-19-122	MW-19-123	MW-19-123	MW-19-124	MW-19-124	MW-20-126	MW-20-126	MW-20-127	MW-20-127	MW-20-128	MW-20-128	MW-20-129
Date Collected:	Residential	Surface Water		06/03/21	03/02/21	06/07/21	03/02/21	06/03/21	03/03/21	06/03/21	03/02/21	06/03/21	03/02/21	06/02/21	03/02/21
Sample Name:				MW-19-122_060321	MW-19-123_030221	MW-19-123_060721	MW-19-124_030221	MW-19-124_060321	MW-20-126_030321	MW-20-126_060321	MW-20-127_030221	MW-20-127_060321	MW-20-128_030221	MW-20-128_060221	MW-20-129_030221
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	**0.5**	<0.5	NA	NA	NA	NA	<0.5	<0.5	<0.5	**0.7**	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	**0.03**	**0.03**	NA	NA	NA	NA	**0.08**	**0.06**	**0.43**	**1.0**	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	**0.3**	**0.3**	NA	NA	NA	NA	**0.7**	**0.8**	**1.4**	**6.1**	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	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
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	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
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	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
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	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
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	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
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	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
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	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
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	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
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	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
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	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
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	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

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-20-129 06/02/21 MW-20-129_060221 64-69	MW-20-130 06/03/21 MW-20-130_060321 63-68	MW-20-131 02/26/21 MW-20-131_022621 5-10	MW-20-131 06/02/21 MW-20-131_060221 5-10	MW-20-132 02/26/21 MW-20-132_022621 6-11	MW-20-132 06/02/21 MW-20-132_060221 6-11	MW-21-133 03/22/21 MW-21-133_032221 10-15	MW-21-133 06/02/21 MW-21-133_060221 10-15	MW-21-134 03/19/21 MW-21-134_031921 11-16	MW-21-134 06/02/21 MW-21-134_060221 11-16	MW-21-135 03/19/21 MW-21-135_031921 22-27	MW-21-135 06/02/21 MW-21-135_060221 22-27
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.83	7.04	NR	7.21	NR	7.44	6.92	6.98	7	7.05	7.22	7.75
Conductivity	- -	- -	mS/cm	4.17	1.17	NR	3.25	NR	1.59	0.76	0.97	0.6	0.91	0.74	1.07
Turbidity	- -	- -	NTU	2.1	138	NR	1.25	NR	1.11	13.1	4.13	11.3	3.33	30.8	17.2
Dissolved oxygen (DO)	- -	- -	mg/L	0.2	1.01	NR	0.25	NR	0.25	2.45	0.41	4.96	0.67	1.55	1.09
Temperature	- -	- -	Deg C	17.7	17	NR	14.6	NR	11.6	14.1	12.9	9.5	14.3	12.6	14.6
Oxidation reduction potential (ORP)	- -	- -	millivolts	-31.8	28.1	NR	61	NR	-3.5	171.2	91.1	68.8	70.4	-81.1	255.5
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**108**	**115**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	<25 [<25]	<25	<25	<25 [<25]	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	<50 [<50]	<50	<50	<50 [<50]	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	<50 [<50]	<50	<50	<50 [<50]	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	<50 [<50]	<50	<50	<50 [<50]	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	<2 [<2]	<2	<2	<2 [<2]	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	**3 [3]**	**4**	**8**	**10 [10]**	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	<10 [<10]	<10	<10	<10 [<10]	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	<5 [<5]	<5	<5	<5 [<5]	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	<90 [<90]	<90	<90	<90 [<90]	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	<1 [<1]	<1	<1	**1 [1]**	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	**3 [3]**	**4**	**3**	**3 [3]**	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	<1 [<1]	<1	<1	<1 [<1]	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	<2 [<2]	<2	<2	<2 [<2]	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-20-129 06/02/21 MW-20-129_060221	MW-20-130 06/03/21 MW-20-130_060321	MW-20-131 02/26/21 MW-20-131_022621	MW-20-131 06/02/21 MW-20-131_060221	MW-20-132 02/26/21 MW-20-132_022621	MW-20-132 06/02/21 MW-20-132_060221	MW-21-133 03/22/21 MW-21-133_032221	MW-21-133 06/02/21 MW-21-133_060221	MW-21-134 03/19/21 MW-21-134_031921	MW-21-134 06/02/21 MW-21-134_060221	MW-21-135 03/19/21 MW-21-135_031921	MW-21-135 06/02/21 MW-21-135_060221
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	<7.4	<7.1 [<7.1]	<7.4	<7.1	<7.4 [<7.4]	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
4:2 FTS	- -	- -	ng/L	NA	<7.4	<7.1 [<7.1]	<7.4	<7.1	<7.4 [<7.4]	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
6:2 FTS	- -	- -	ng/L	NA	<7.4	<7.1 [<7.1]	<7.4	<7.1	<7.4 [<7.4]	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
8:2 FTS	- -	- -	ng/L	NA	<7.4	<7.1 [<7.1]	<7.4	<7.1	<7.4 [<7.4]	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	<7.4	<7.1 [<7.1]	<7.4	<7.1	<7.4 [<7.4]	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
ADONA	- -	- -	ng/L	NA	<7.4	<7.1 [<7.1]	<7.4	<7.1	<7.4 [<7.4]	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	<3.7	<3.6 [<3.6]	<3.7	<3.6	<3.7 [<3.7]	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	<3.7	<3.6 [<3.6]	<3.7	<3.6	<3.7 [<3.7]	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	<3.7	<3.6 [<3.6]	<3.7	<3.6	<3.7 [<3.7]	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	<1.9	**1.4 J [<1.8]**	**1 J**	**1.4 J**	**1.2 J [1.2 J]**	**2.4**	**2.2**	**2.2**	**1.8**	**2**	**2.4**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	**13.7**	**24.1 [23.6]**	**23.2**	**22.7**	**22.6 [22.4]**	**20.2**	**20.4**	**15.6**	**10.7**	**21.1**	**18.5**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	<1.8	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	**1.5 J**	**1.6 J [1.5 J]**	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	<1.8	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	**1.2 J**	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	**8.4**	**27.4 [27.2]**	**30.9**	**26.4**	**29.2 [28.5]**	**24.5**	**21.7**	**17.5**	**12.5**	**31.7**	**35.6**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	<1.9	**1.3 J [2.8]**	**2.2**	**2**	**1.3 J [1.8 J]**	**2.9**	**1.8**	**3.1**	**1.8**	**2.4**	**1.4 J**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	**37.4**	**33.6 [32.9]**	**31.6**	**29.9**	**28.5 [28]**	**31.3**	**28.2**	**21.1**	**13.7**	**40.4**	**37.2**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	<1.8	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	<1.9	**2.1 [2.4]**	**3.4**	**7.3**	**7.9 [7.8]**	**1.2 J**	<1.8	<1.8	<1.8	**2.7**	**2**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	<3.7	<3.6 [<18]	<3.7	<18	<3.7 [<3.7]	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	<1.9	**4.9 [6]**	**8.5**	**20.2**	**20 [18.7]**	**8.7**	**7.4**	**6.7**	**5.2**	**4.1**	**3.2**
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	**1.5 J**	**37.3 [37.1]**	**38.8**	**43.2**	**45.2 [43.7]**	**62.9**	**44.9**	**37.6**	**22.6**	**48.3**	**47.3**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	<1.8	**0.97 J [<1.9]**	**1.4 J**	<1.8	**1.1 J**	<1.8	<1.8	**0.95 J**
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	**26.4**	**38.4 [39.5]**	**40.8**	**31.4**	**34.3 [33.7]**	**23.7**	**25.6**	**19.8**	**12.1**	**39.4**	**38.7**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	<1.9	<8.9 [<1.8]	<1.9	<1.8	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<8.9	<1.8
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	<1.8	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	<1.9	<1.8 [<1.8]	<1.9	<1.8	<1.9 [<1.9]	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	MW-21-136 03/19/21 MW-21-136_031921 9-14	MW-21-136 06/02/21 MW-21-136_060221 9-14	MW-21-137 03/19/21 MW-21-137_031921 7-12	MW-21-137 06/02/21 MW-21-137_060221 7-12	MW-21-138 03/19/21 MW-21-138_031921 24-29	MW-21-138 06/02/21 MW-21-138_060221 24-29	MW-23 06/08/21 MW-23_060821 52-62	MW-91-2R 06/08/21 MW-91-2R_060821 75-80	P6-SB-07 03/04/21 P6-SB-07_030421 15-20	P6-SB-07 06/02/21 P6-SB-07_060221 15-20	PW-14-01 06/04/21 PW-14-01_060421 71.6-76.8	PW-14-02 03/03/21 PW-14-02_030321 75-80
Field															
pH	6.5 to 8.5	6.5 to 9.0	s.u.	6.87	7.22	6.85	6.82	7.1	7	7.13	6.97	7.5	7.54	7.28	7.6
Conductivity	- -	- -	mS/cm	0.61	0.84	0.68	0.97	1.13	1.56	1.25	1.3	0.344	0.562	4.22	2.37
Turbidity	- -	- -	NTU	1.83	5.47	2.78	2.64	22	9.61	0.02	0.02	9.58	9.21	8.04	9.83
Dissolved oxygen (DO)	- -	- -	mg/L	8.08	0.63	4.31	0.53	6.01	0.53	0.3	2.36	2.1	0.26	7.28	9.04
Temperature	- -	- -	Deg C	8.2	12.8	8.4	12.6	12	13.6	19.7	25.9	6.7	14.1	28.2	13.1
Oxidation reduction potential (ORP)	- -	- -	millivolts	213.7	321.7	183.1	300.3	177.4	69.6	-109.8	28	-66.9	-86.2	38.5	26.3
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)															
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1	**37**
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

ARCADIS

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		MW-21-136 03/19/21 MW-21-136_031921	MW-21-136 06/02/21 MW-21-136_060221	MW-21-137 03/19/21 MW-21-137_031921	MW-21-137 06/02/21 MW-21-137_060221	MW-21-138 03/19/21 MW-21-138_031921	MW-21-138 06/02/21 MW-21-138_060221	MW-23 06/08/21 MW-23_060821	MW-91-2R 06/08/21 MW-91-2R_060821	P6-SB-07 03/04/21 P6-SB-07_030421	P6-SB-07 06/02/21 P6-SB-07_060221	PW-14-01 06/04/21 PW-14-01_060421	PW-14-02 03/03/21 PW-14-02_030321
Inorganics-Metals (via EPA Method 537 Modified)															
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	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
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	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
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	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
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)															
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)															
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	<7.1	<7.4	<7.1	<7.4	<7.1	<7.7	<7.1	<7.1	<7.1	<7.4	NA	NA
4:2 FTS	- -	- -	ng/L	<7.1	<7.4	<7.1	<7.4	<7.1	<7.7	<7.1	<7.1	<7.1	<7.4	NA	NA
6:2 FTS	- -	- -	ng/L	<7.1	<7.4	<7.1	<7.4	<7.1	<7.7	<7.1	<7.1	<7.1	<7.4	NA	NA
8:2 FTS	- -	- -	ng/L	<7.1	<7.4	<7.1	<7.4	<7.1	<7.7	<7.1	<7.1	<7.1	<7.4	NA	NA
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	<7.1	<7.4	<7.1	<7.4	<7.1	<7.7	<7.1	<7.1	<7.1	<7.4	NA	NA
ADONA	- -	- -	ng/L	<7.1	<7.4	<7.1	<7.4	<7.1	<7.7	<7.1	<7.1	<7.1	<7.4	NA	NA
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	<3.6	<3.7	<3.6	<3.7	<3.6	<3.8	<3.6	<3.6	<3.6	<3.7	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	<3.6	<3.7	<3.6	<3.7	<3.6	<3.8	<3.6	<3.6	<3.6	<3.7	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	<3.6	<3.7	<3.6	<3.7	<3.6	<3.8	<3.6	<3.6	<3.6	<3.7	NA	NA
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<18	**6.7**	NA	NA
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	**3.1 J**	<3.7	<3.6	<3.7	**4.3**	<3.8	<3.6	**17.3**	**417**	**333**	NA	NA
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8	<1.9	NA	NA
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	**45.5**	**41.1**	NA	NA
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8	<1.9	NA	NA
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	**2.2**	**1.7 J**	NA	NA
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	**1,210**	**1,140**	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	**11.3**	**7.6**	NA	NA
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	**1.4 J**	<1.9	<1.8	<1.9	**1.9**	<1.9	<1.8	<1.8	**1,550**	**1,240**	NA	NA
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8	<1.9	NA	NA
Perfluorononanoic acid (PFNA)	6	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	**208**	**181**	NA	NA
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	<3.6	<3.7	<3.6	<3.7	<3.6	<3.8	<3.6	<3.6	<3.6	<3.7	NA	NA
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	**1.8**	<1.9	<1.8	<1.9	<1.8	<1.9	**1.2 J**	<1.8	**103**	**87**	NA	NA
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	**1.2 J**	<1.9	<1.8	<1.9	**1.7 J**	<1.9	<1.8	<1.8	**1,930**	**1,600**	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<18	**2.4**	NA	NA
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	**1.1 J**	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	**1,590**	**1,250**	NA	NA
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8	<1.9	NA	NA
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8	<1.9	NA	NA
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	<1.8	<1.9	<1.8	<1.9	<1.8	<1.9	<1.8	<1.8	<1.8	<1.9	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name: / Sample Depth (ft. bgs):	P201 Residential Drinking Water	P201 Groundwater Surface Water Interface	Units	PW-14-02 06/02/21 PW-14-02_060221 75-80	PW-14-03 03/03/21 PW-14-03_030321 85-90	PW-14-03 06/08/21 PW-14-03_060821 85-90	TW-14-02 03/03/21 TW-14-02_030321 67-72	TW-14-02 06/02/21 TW-14-02_060221 67-72	TW-14-06 03/02/21 TW-14-06-030221 82-87	TW-14-06 06/07/21 TW-14-06_060721 82-87	TW-15-11 03/03/21 TW-15-11_030321 85-90	TW-15-11 06/07/21 TW-15-11_060721 85-90	TW-15-12 03/02/21 TW-15-12_030221 73-78	TW-15-12 06/02/21 TW-15-12_060221 73-78	UNK-15 03/04/21 UNK-15_030421 11-16	UNK-15 06/09/21 UNK-15_060921 11-16
Field																
pH	6.5 to 8.5	6.5 to 9.0	s.u.	7.55	7.11	7.26	7.86	7.52	7.25	7.28	6.98	7.07	7.36	7.52	8.11	7.82
Conductivity	- -	- -	mS/cm	2.34	2.75	3.28	3.99	5.05	2.48	1.71	3.56	2.97	1.62	2.69	0.459	0.65
Turbidity	- -	- -	NTU	0.02	3.51	0.02	312	39.1	1000	NR	52.4	3.71	129	82	1.41	1.44
Dissolved oxygen (DO)	- -	- -	mg/L	8.56	9.12	8.63	12.61	8.39	10.44	12.87	9.45	11.85	10.91	8.58	1.94	0.1
Temperature	- -	- -	Deg C	20.6	13.2	20.2	12	18.9	10.3	16.2	12.5	16.1	12.4	17.9	5.5	16.5
Oxidation reduction potential (ORP)	- -	- -	millivolts	156.8	39.9	58.3	49	171.1	67.5	168.7	89	83.2	60.2	190.4	20.6	76.3
Volatile Organics (via EPA Method 537 Modified or EPA Method SW5030C/8260C)																
1,1-Dichloroethane	880	740	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	7.0	130	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	200	89	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	77	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	5.0	330	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	8.5	78	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	5.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	600	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.0	360	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	5.0	230	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	42	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	70	99	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	63	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	6.6	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	72	45	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	75	17	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	7.2	280	µg/L	**23**	**27**	**22**	<1	<1	<1 [<1]	<1 [<1]	**48**	**41**	**5**	**7**	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	2,200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	1,000	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	260	19	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	730	1,700	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2.6	2	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	18	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	10	5.0	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	800	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	5.0	38	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	100	25	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	430	1,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	80	350	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	260	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	620	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	10	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	74	18	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	7.3	6.7	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	800	28	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	40	7,100	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	5.0	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	520	11	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	100	80	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	80	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5.0	60	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	95	11,000	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	790	270	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	100	1,500	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	5.0	200	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	2.0	13	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	- -	- -	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	280	49	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

See notes on last page.

Table 2
Summary of Groundwater Analytical Results
2021 Semi-Annual Groundwater Report
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

Location ID: / Date Collected: / Sample Name:	P201 Residential	P201 Groundwater Surface Water		PW-14-02 06/02/21 PW-14-02_060221	PW-14-03 03/03/21 PW-14-03_030321	PW-14-03 06/08/21 PW-14-03_060821	TW-14-02 03/03/21 TW-14-02_030321	TW-14-02 06/02/21 TW-14-02_060221	TW-14-06 03/02/21 TW-14-06-030221	TW-14-06 06/07/21 TW-14-06_060721	TW-15-11 03/03/21 TW-15-11_030321	TW-15-11 06/07/21 TW-15-11_060721	TW-15-12 03/02/21 TW-15-12_030221	TW-15-12 06/02/21 TW-15-12_060221	UNK-15 03/04/21 UNK-15_030421	UNK-15 06/09/21 UNK-15_060921
Inorganics-Metals (via EPA Method 537 Modified)																
Antimony	0.006	0.13	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	0.01	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2.0	1.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron	0.5	7.2	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.005	0.0045	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium III (trivalent)	0.1	0.16	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI (hexavalent)	0.1	0.011	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.04	0.1	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.0	0.02	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	0.3	- -	mg/L	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
Magnesium	400	- -	mg/L	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
Mercury	0.002	0.0000013	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	0.1	0.12	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	0.05	0.005	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.034	0.0002	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	230	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	0.0045	0.027	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	2.4	0.26	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (via EPA Method 537 Modified)																
Alkalinity, carbonate	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, total (as CaCO3)	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorine	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoride	- -	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	10	- -	mg/L	NA	NA	NA	NA	NA	<0.5 [<0.5]	<0.5 [<0.5]	NA	NA	<0.5	<0.5	NA	NA
Nitrite (as N)	1.0	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	63	- -	mg/L	NA	NA	NA	NA	NA	**10.8 [8.3]**	**14.0 [9.3]**	NA	NA	**0.15**	**0.14**	NA	NA
Sulfate	250	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500	- -	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total kjeldahl nitrogen (TKN)	- -	- -	mg/L	NA	NA	NA	NA	NA	**8.6 [8.4]**	**8.2 [7]**	NA	NA	**0.4**	**0.4**	NA	NA
Per- and Polyfluoroalkyl Substances (PFAS) (via EPA Method 537 Modified)																
11Cl-PF3OUdS (F-53B Minor)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	<7.1
4:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	<7.1
6:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	<7.1
8:2 FTS	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	<7.1
9Cl-PF3ONS (F-53B Major)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	<7.1
ADONA	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<7.1	<7.1
Hexafluoropropylene oxide dimer acid (HFPO-DA) (GenX)	370	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	<3.6
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	<3.6
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	<3.6
Perfluorobutanesulfonic acid (PFBS)	420	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.7**	**3.1**
Perfluorobutanoic acid (PFBA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18.9**	**18.4**
Perfluorodecanesulfonic acid (PFDS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8	<1.8
Perfluorodecanoic acid (PFDA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.3**	**2.6**
Perfluorododecanoic acid (PFDoA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8	<1.8
Perfluoroheptanesulfonic Acid (PFHpS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**17.1**	**22.2**
Perfluoroheptanoic acid (PFHpA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**12.3**	**10.3**
Perfluorohexanesulfonic acid (PFHxS)	51	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20.8**	**18.5**
Perfluorohexanoic acid (PFHxA)	400,000	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**16.5**	**17**
Perfluorononanesulfonic acid (PFNS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8	**2.9**
Perfluorononanoic acid (PFNA)	6	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**5.7**	**6.6**
Perfluorooctane Sulfonamide (PFOSA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.6	<3.6
Perfluorooctane sulfonic acid (PFOS)	16	12	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,170**	**1,120**
Perfluorooctanoic acid (PFOA)	8	12,000	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**40**	**39.6**
Perfluoropentanesulfonic acid (PFPeS)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.1**	**2.6**
Perfluoropentanoic acid (PFPeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**18.4**	**21.8**
Perfluorotetradecanoic acid (PFTeA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8	<1.8
Perfluorotridecanoic Acid (PFTriA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8	<1.8
Perfluoroundecanoic acid (PFUnA)	- -	- -	ng/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.8	<1.8

See notes on last page.

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

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

Notes:
1. EGLE Part 201 Residential Drinking Water Criteria and Groundwater Surface Water Interface Criteria from the Generic Cleanup Criteria and Screening Levels (dated January 10, 2018) are used for comparison with all VOC and Inorganic data and revised criteria values (dated December 21, 2020) are used for comparison with all PFAS data.
2. 1,4-Dioxane is compared to a drinking water criteria of 7.2 µg/L per the *MDEQ Establishment of Cleanup Criteria for 1,4 -Dioxane: Emergency Rules* dated October 27, 2016.

Abbreviations:
- - = Not listed in the EGLE Criteria Tables.
* = Analyzed for low-level 1,4-Dioxane via EPA Method 522
Deg. C. = degrees Celsius
EGLE = Michigan Department of Environment, Great Lakes, and Energy
mg/L = milligrams per liter
NA = Not Analyzed
NR = Not Recorded
NTU = Nephelometric Turbidity Unit
s.u. = standard unit
ug/L = micrograms per liter
µS/cm = microSiemens per centimeter

Lab and Validation Data Qualifiers:
F1 = Matrix spike and/or matrix spike duplicate recovery is outside acceptance limits.
J = The compound was positively identified, however, the associated numerical value is an estimated concentration only.
Y = Elevated reporting limit due to high target concentration.

Table 3
LNAPL Thickness, June 2021
2021 Semi-Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Depth to Water (feet below TOC)	Depth to LNAPL (feet below TOC)	Calculated Thickness NAPL (feet)	Groundwater Elevation (feet msl)	Corrected Groundwater Elevation (feet msl)
Plant 2									
LMW-12-01	6/4/21	864.91	862.14	NM	6.49	NP	NP	858.42	858.42
LMW-12-02	6/4/21	865.25	862.17	NM	5.94	NP	NP	859.31	859.31
LMW-12-03D	6/4/21	864.99	862.08	NM	17.17	5.04	12.13	847.82	858.73
LMW-12-03S	6/4/21	864.93	862.06	NM	4.95	NP	NP	859.98	859.98
LMW-12-04	6/4/21	864.94	862.12	NM	6.98	NP	NP	857.96	857.96
LMW-12-05	6/4/21	865.03	862.17	NM	8.9	8.5	0.4	856.13	856.49
LMW-12-06	6/4/21	865.02	862.15	NM	7.39	NP	NP	857.63	857.63
LMW-12-07	6/4/21	864.13	861.50	NM	3.94	NP	NP	860.19	860.19
LMW-12-08	6/4/21	864.40	861.56	NM	6.03	4.24	1.79	858.37	859.98
LMW-14-12D	6/4/21	864.59	862.11	NM	25.00	4.91	20.09	839.59	857.66
LMW-14-13D	6/4/21	865.03	862.06	NM	6.45	NP	NP	858.58	858.58
LMW-14-14D	6/4/21	864.89	861.90	NM	7.01	NP	NP	857.88	857.88
LMW-14-15D	6/4/21	865.11	861.66	NM	22.05	5.47	16.58	843.06	857.97
LMW-15-16D	6/4/21	865.20	862.24	NM	22.95	6.94	16.01	842.25	856.65
LMW-15-17D	6/4/21	865.21	862.24	NM	7.22	NP	NP	857.99	857.99
P2-SB-37	6/4/21	865.90	861.90	NM	6.47	4.91	1.56	859.43	860.83
PMW-01	6/4/21	860.85	861.33	NM	0.79	0.72	0.07	860.06	860.12
PMW-02	6/4/21	860.94	861.33	NM	0.42	NP	NP	860.52	860.52
PMW-03	6/4/21	861.59	862.12	NM	1.09	NP	NP	860.50	860.50
Plant 3									
LMW-12-09	6/4/21	863.22	860.40	NM	4.4	NP	NP	858.82	858.82
LMW-12-10	6/4/21	866.82	863.60	NM	13.21	10.98	2.23	853.61	855.62
LMW-12-11	6/4/21	866.53	863.53	NM	12.22	NP	NP	854.31	854.31
UNK-14	6/4/21	859.32	859.70	NM	1.05	0.69	0.36	858.27	858.59

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
- Where LNAPL was observed, groundwater elevations have been corrected using a measured LNAPL density of 0.8995 gram per milliliter.

Table 4
Groundwater Elevations, January to June 2021
2021 Semi-Annual Groundwater Monitoring Report
RACER Trust Plants 2, 3, and 6
Lansing, Michigan

Well ID	Date Collected	Screened Interval Top (feet bgs)	Screened Interval Bottom (feet bgs)	Reference Elevation (TOC)	Ground Surface Elevation (feet msl)	Total Well Depth (feet below TOC)	Corrected Depth to Water (feet below TOC)	Corrected Groundwater Elevation (feet msl)
Plant 2								
MW-12-01	3/1/2021	87	110	867.94	865.46	111.10	72.55	795.39
MW-12-01	6/1/2021	87	110	867.94	865.46	93.00	71.12	796.82
MW-12-02	3/1/2021	87	110	853.91	851.88	108.95	61.49	792.42
MW-12-02	6/1/2021	87	110	853.91	851.88	95.60	59.80	794.11
MW-12-05R	3/1/2021	100	112	864.79	862.30	116.10	70.85	793.94
MW-12-05R	6/1/2021	100	112	864.79	862.30	106.60	69.44	795.35
MW-12-06	3/1/2021	80.6	99.5	864.64	861.69	103.50	68.59	796.05
MW-12-06	6/1/2021	80.6	99.5	864.64	861.69	86.90	67.82	796.82
MW-12-09	6/1/2021	14	19	863.54	860.63	NR	13.33	850.21
MW-12-18	6/1/2021	28	33	866.43	864.19	34.80	23.24	843.19
MW-13-43	3/1/2021	72	77	863.82	860.97	78.20	62.73	801.09
MW-13-43	6/1/2021	72	77	863.82	860.97	78.18	62.94	800.88
MW-13-44	3/1/2021	96	115	864.24	861.03	119.00	71.74	792.50
MW-13-44	6/1/2021	96	115	864.24	861.03	119.00	70.09	794.15
MW-13-45	3/1/2021	72	77	863.80	861.54	78.30	63.50	800.30
MW-13-45	6/1/2021	72	77	863.80	861.54	78.31	63.21	800.59
MW-14-56	6/1/2021	71	76	863.27	860.56	78.99	65.43	797.84
MW-14-58	6/1/2021	22	27	863.12	860.23	NR	14.00	849.12
MW-14-59	6/1/2021	12	17	864.61	861.80	NR	5.67	858.94
MW-14-60	6/1/2021	15	20	864.65	861.80	NR	10.37	854.28
MW-14-61	3/1/2021	70	75	865.51	862.30	77.45	65.21	800.30
MW-14-61	6/1/2021	70	75	865.51	862.30	77.44	63.37	802.14
MW-14-62	6/1/2021	12	17	865.17	862.25	NR	4.46	860.71
MW-14-63	3/1/2021	68	73	854.64	851.68	76.70	61.33	793.31
MW-15-72	3/1/2021	63	68	865.09	862.35	70.28	56.65	808.44
MW-15-72	6/1/2021	63	68	865.09	862.35	70.29	56.11	808.98
MW-16-74	3/1/2021	66	71	864.81	862.10	73.68	62.95	801.86
MW-16-74	6/1/2021	66	71	864.81	862.10	73.68	61.37	803.44
MW-16-75	6/1/2021	66	71	864.87	862.13	74.08	59.97	804.90
MW-16-77	6/1/2021	66	71	866.17	863.42	73.97	58.94	807.23
MW-16-78	3/1/2021	68	73	864.98	862.09	76.17	62.02	802.96
MW-16-78	6/1/2021	68	73	864.98	862.09	76.15	61.82	803.16
MW-16-79	3/1/2021	68	73	864.80	862.07	75.74	63.19	801.61
MW-16-79	6/1/2021	68	73	864.80	862.07	75.81	62.88	801.92
MW-16-80	6/1/2021	68	73	853.03	853.41	73.35	57.96	795.07
MW-16-81	3/1/2021	70	75	864.68	862.04	77.22	62.07	802.61
MW-16-81	6/1/2021	70	75	864.68	862.04	77.24	61.99	802.69
MW-16-82	3/1/2021	70	75	864.79	862.10	77.15	63.85	800.94
MW-16-82	6/1/2021	70	75	864.79	862.10	77.15	63.28	801.51
MW-16-83	3/1/2021	71	76	862.97	860.17	79.05	67.79	795.18
MW-16-83	6/1/2021	71	76	862.97	860.17	79.06	66.66	796.31
MW-16-84	3/1/2021	72	77	864.09	861.81	81.12	65.98	798.11
MW-16-84	6/1/2021	72	77	864.09	861.81	81.13	65.40	798.69
MW-16-85	6/1/2021	74	79	864.77	861.87	81.82	66.39	798.38
MW-17-86	3/1/2021	73	78	864.55	861.92	81.43	63.45	801.10
MW-17-86	6/1/2021	73	78	864.55	861.92	81.41	63.00	801.55
MW-17-87	3/1/2021	100	112	862.82	860.44	113.75	68.68	794.14
MW-17-87	6/1/2021	100	112	862.82	860.44	113.80	67.59	795.23

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Plant 2 ***(continued)***								
MW-19-115	3/1/2021	72.5	77.5	865.04	862.19	80.32	57.59	807.45
MW-19-115	6/1/2021	72.5	77.5	865.04	862.19	80.69	57.10	807.94
MW-19-116	3/1/2021	65	70	865.12	862.17	73.22	56.62	808.50
MW-19-116	6/1/2021	65	70	865.12	862.17	73.19	56.06	809.06
MW-19-117	3/1/2021	54	59	865.10	862.15	62.80	58.81	806.29
MW-19-117	6/1/2021	54	59	865.10	862.15	62.85	58.38	806.72
MW-19-118D	3/1/2021	175	190	862.78	859.80	192.95	70.39	792.39
MW-19-118D	6/1/2021	175	190	862.78	859.80	195.00	68.31	794.47
MW-19-118S	3/1/2021	145	160	862.81	859.80	162.85	70.39	792.42
MW-19-118S	6/1/2021	145	160	862.81	859.80	164.60	68.34	794.47
MW-19-120	3/1/2021	66	71	864.67	862.13	74.00	63.46	801.21
MW-19-121	3/1/2021	66	71	864.52	862.19	73.60	62.40	802.12
MW-19-121	6/1/2021	66	71	864.52	862.19	74.20	63.23	801.29
MW-19-122	3/1/2021	59	64	865.02	862.15	67.89	61.00	804.02
MW-19-122	6/1/2021	59	64	865.02	862.15	67.60	62.58	802.44
MW-19-123	3/1/2021	66	71	864.45	862.04	73.80	60.78	803.67
MW-19-123	6/1/2021	66	71	864.45	862.04	74.75	60.65	803.80
MW-19-124	3/1/2021	65	70	864.53	862.22	72.22	62.96	801.57
MW-19-124	6/1/2021	65	70	864.53	862.22	72.60	62.95	801.58
MW-19-125	3/1/2021	100	115	865.19	862.16	104.80	71.69	793.50
MW-19-125	6/1/2021	100	115	865.19	862.16	104.30	70.29	794.90
MW-20-126	3/1/2021	69	74	861.89	859.50	76.05	52.75	809.14
MW-20-126	6/1/2021	69	74	861.89	859.50	77.30	71.54	790.35
MW-20-127	3/1/2021	72	77	862.58	861.30	78.70	62.84	799.74
MW-20-127	6/1/2021	72	77	862.58	861.30	78.70	62.57	800.01
MW-20-128	3/1/2021	65	70	863.73	861.40	70.05	58.74	804.99
MW-20-128	6/1/2021	65	70	863.73	861.40	70.05	67.90	795.83
MW-20-129	3/1/2021	64	69	864.91	862.20	70.98	59.31	805.60
MW-20-129	6/1/2021	64	69	864.91	862.20	71.70	60.57	804.34
MW-20-130	6/1/2021	63	68	863.98	862.20	74.00	62.65	801.33
PW-14-01	6/1/2021	71.6	76.8	864.97	862.38	81.85	61.52	803.45
PW-14-02	3/1/2021	75	80	863.87	860.93	85.21	62.73	801.14
PW-14-02	6/1/2021	75	80	863.87	860.93	85.22	62.61	801.26
TW-14-02	3/1/2021	67	72	865.01	862.13	71.91	58.34	806.67
TW-14-02	6/1/2021	67	72	865.01	862.13	71.74	57.82	807.19
TW-15-12	3/1/2021	73	78	860.88	861.23	76.70	61.56	799.32
TW-15-12	6/1/2021	73	78	860.88	861.23	76.80	58.65	802.23
Plant 3								
CH-14-RO	6/1/2021	7	12	866.44	863.68	14.85	9.29	857.15
MW-02-04(3)	6/1/2021	76	86	859.41	859.96	84.00	58.29	801.12
MW-04-01(3)	3/1/2021	95	105	862.61	862.93	104.50	50.71	811.90
MW-04-01(3)	6/1/2021	95	105	862.61	862.93	104.52	50.50	812.11
MW-04-02(3)	3/1/2021	126	136	861.09	861.26	133.30	61.28	799.81
MW-04-02(3)	6/1/2021	126	136	861.09	861.26	133.30	60.92	800.17
MW-04-03(3)	3/1/2021	80	90	860.72	861.00	81.60	60.32	800.40
MW-04-03(3)	6/1/2021	80	90	860.72	861.00	87.30	59.92	800.80
MW-04-04(3)	3/1/2021	72	82	855.72	856.11	81.60	55.24	800.48
MW-04-04(3)	6/1/2021	72	82	855.72	856.11	81.40	54.85	800.87
MW-12-04	3/1/2021	77	100	844.08	844.26	100.25	45.94	798.14

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Plant 3 ***(continued)***								
MW-12-04	6/1/2021	77	100	844.08	844.26	99.90	45.37	798.71
MW-12-21	6/1/2021	70	75	864.50	861.45	78.05	62.75	801.75
MW-13-22	3/1/2021	89	94	864.37	861.50	96.13	64.97	799.40
MW-13-22	6/1/2021	89	94	864.37	861.50	96.20	64.50	799.87
MW-13-23	6/1/2021	69	74	864.31	861.45	77.50	63.38	800.93
MW-13-24	6/1/2021	69	74	864.35	861.48	77.30	62.12	802.23
MW-13-25	6/1/2021	67	72	863.77	860.49	75.00	62.89	800.88
MW-13-27	6/1/2021	67	72	864.50	861.54	75.70	63.42	801.08
MW-13-28	3/1/2021	99	115.5	864.42	861.61	114.85	65.60	798.82
MW-13-28	6/1/2021	99	115.5	864.42	861.61	114.75	65.03	799.39
MW-13-29	6/1/2021	68	73	862.81	859.81	76.30	31.18	831.63
MW-13-34	3/1/2021	74	79	853.92	851.82	79.71	59.91	794.01
MW-13-34	6/1/2021	74	79	853.92	851.82	79.80	58.67	795.25
MW-13-35	3/1/2021	25	30	864.81	865.23	29.45	23.26	841.55
MW-13-35	6/1/2021	25	30	864.81	865.23	29.45	23.35	841.46
MW-13-36R	3/1/2021	5.5	10.5	878.04	875.28	12.70	3.88	874.16
MW-13-36R	6/1/2021	5.5	10.5	878.04	875.28	12.65	7.68	870.36
MW-13-37	3/1/2021	97	112	866.02	863.75	114.45	67.09	798.93
MW-13-37	6/1/2021	97	112	866.02	863.75	114.45	66.62	799.40
MW-13-38	3/1/2021	107	124	866.47	863.71	126.40	67.70	798.77
MW-13-38	6/1/2021	107	124	866.47	863.71	126.50	67.64	798.83
MW-13-39B	3/1/2021	97	112	860.20	857.33	105.50	61.81	798.39
MW-13-39B	6/1/2021	97	112	860.20	857.33	105.30	61.47	798.73
MW-13-41	3/1/2021	77	82	866.38	863.68	84.70	57.49	808.89
MW-13-41	6/1/2021	77	82	866.38	863.68	84.85	57.39	808.99
MW-13-46	3/1/2021	68	73	854.54	852.12	74.65	59.14	795.40
MW-13-46	6/1/2021	68	73	854.54	852.12	74.60	58.06	796.48
MW-13-47	3/1/2021	99	119	853.74	851.89	113.65	59.34	794.40
MW-13-47	6/1/2021	99	119	853.74	851.89	113.60	57.96	795.78
MW-13-48	6/1/2021	65	70	854.83	852.17	73.05	54.24	800.59
MW-14-64	6/1/2021	98.6	103.6	864.56	861.77	106.30	64.82	799.74
MW-18-88	3/1/2021	6	11	863.70	860.93	15.00	3.14	860.56
MW-18-88	6/1/2021	6	11	863.70	860.93	15.04	5.95	857.75
MW-18-89	3/1/2021	7	12	866.53	863.51	15.60	7.20	859.33
MW-18-89	6/1/2021	7	12	866.53	863.51	15.60	9.73	856.80
MW-18-90	3/1/2021	15	20	866.32	863.25	23.15	9.65	856.67
MW-18-90	6/1/2021	15	20	866.32	863.25	23.15	11.19	855.13
MW-18-91	3/1/2021	7	12	865.94	863.43	14.98	5.00	860.94
MW-18-91	6/1/2021	7	12	865.94	863.43	14.98	7.54	858.40
MW-18-92	6/1/2021	23	28	870.43	869.08	30.10	16.65	853.78
MW-18-93	6/1/2021	77.5	82.5	863.77	860.99	85.01	48.41	815.36
MW-18-94	6/1/2021	72	77	866.34	863.86	79.66	53.02	813.32
MW-18-95	3/1/2021	4.5	9.5	864.66	861.76	12.45	6.31	858.35
MW-18-95	6/1/2021	4.5	9.5	864.66	861.76	12.49	7.34	857.32
MW-18-96	6/1/2021	7	12	864.60	861.64	14.85	DRY	DRY
MW-18-97	6/1/2021	85	90	860.91	859.13	91.70	60.51	800.40
MW-18-98	3/1/2021	7	12	862.16	859.10	14.90	4.29	857.87
MW-18-98	6/1/2021	7	12	862.16	859.10	14.95	5.60	856.56
MW-18-99	3/1/2021	9	14	862.47	859.95	16.85	4.65	857.82
MW-18-99	6/1/2021	9	14	862.47	859.95	16.85	6.02	856.45
MW-18-100	6/1/2021	8	13	863.94	861.49	15.85	11.40	852.54

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Plant 3 ***(continued)***								
MW-18-101	6/1/2021	80	85	863.87	861.24	87.45	60.43	803.44
MW-18-102	6/1/2021	10	15	863.13	863.44	14.70	10.84	852.29
MW-18-103	3/1/2021	5	10	859.13	859.74	10.70	0.81	858.32
MW-18-103	6/1/2021	5	10	859.13	859.74	10.73	3.77	855.36
MW-18-104	6/1/2021	5	10	859.12	859.82	9.48	3.76	855.36
MW-18-105	3/1/2021	6	11	858.59	859.01	11.20	0.18	858.41
MW-18-105	6/1/2021	6	11	858.59	859.01	11.19	2.21	856.38
MW-18-106	6/1/2021	5	10	866.15	866.51	9.56	5.46	860.69
MW-19-107	6/1/2021	23	28	870.65	869.20	29.85	18.34	852.31
MW-19-108	6/1/2021	23	28	872.60	870.22	30.10	17.66	854.94
MW-19-110	6/1/2021	8	13	863.67	860.72	16.25	16.22	847.45
MW-19-111	6/1/2021	20	25	874.51	871.70	27.40	22.94	851.57
MW-19-112	6/1/2021	9	14	861.63	858.53	17.60	6.10	855.53
MW-19-113	6/1/2021	16	21	860.67	857.73	24.60	24.44	836.23
MW-19-114	6/1/2021	6	11	861.25	861.79	10.78	2.56	858.69
MW-19-119D	3/1/2021	180	195	864.42	861.66	199.50	74.79	789.63
MW-19-119D	6/1/2021	180	195	864.42	861.66	199.00	72.37	792.05
MW-19-119S	3/1/2021	145	160	864.32	861.66	162.95	65.91	798.41
MW-19-119S	6/1/2021	145	160	864.32	861.66	163.00	64.94	799.38
MW-23	6/1/2021	52	62	859.45	859.76	50.40	44.61	814.84
MW-88-1	3/1/2021	103.5	140	858.75	859.06	138.60	63.37	795.38
MW-88-1	6/1/2021	103.5	140	858.75	859.06	137.20	63.12	795.63
MW-91-2R	6/1/2021	75	80	866.84	863.63	84.15	56.62	810.22
MW-91-3	3/1/2021	105	117	860.81	859.35	119.20	64.25	796.56
MW-91-4	3/1/2021	116	132.5	855.59	855.93	131.95	56.66	798.93
MW-91-4	6/1/2021	116	132.5	855.59	855.93	130.60	56.20	799.39
MW-91-5	3/1/2021	112.5	128	860.61	861.20	127.70	59.88	800.73
MW-91-5	6/1/2021	112.5	128	860.61	861.20	127.75	59.29	801.32
MW-91-6	3/1/2021	82	98	851.84	852.22	96.15	56.48	795.36
MW-91-6	6/1/2021	82	98	851.84	852.22	95.40	55.35	796.49
P3-SB-07	6/1/2021	11	16	866.84	863.63	19.60	9.49	857.35
PW-14-03	3/1/2021	85	90	864.31	861.55	94.30	67.14	797.17
PW-14-03	6/1/2021	85	90	864.31	861.55	74.60	66.24	798.07
TW-14-06	3/1/2021	82	87	864.30	861.50	88.39	45.68	818.62
TW-14-06	6/1/2021	82	87	864.30	861.50	86.50	58.65	805.65
TW-14-07	6/1/2021	83	88	864.45	861.44	88.90	46.05	818.40
TW-14-08	6/1/2021	84	89	864.30	861.42	90.00	63.33	800.97
TW-14-09	6/1/2021	84	89	864.39	861.71	90.80	65.69	798.70
TW-15-11	3/1/2021	85	90	864.51	861.60	86.90	66.09	798.42
TW-15-11	6/1/2021	85	90	864.51	861.60	86.90	65.35	799.16
UNK-15	3/1/2021	11	16	859.56	859.94	15.65	0.50	859.06
UNK-15	6/1/2021	11	16	859.56	859.94	15.65	0.63	858.93
Plant 6								
MW-04-01(6)	3/1/2021	78	88	866.85	867.15	87.90	66.62	800.23
MW-04-01(6)	6/1/2021	78	88	866.85	867.15	87.95	66.40	800.45
MW-04-04R	3/1/2021	82	110	873.31	870.64	111.00	72.75	800.56
MW-04-04R	6/1/2021	82	110	873.31	870.64	111.02	72.54	800.77
MW-04-06R	3/1/2021	74	99.5	861.56	858.59	77.95	62.05	799.51
MW-04-06R	6/1/2021	74	99.5	861.56	858.59	77.79	61.78	799.78
MW-12-03	3/1/2021	57	80	859.10	856.71	82.28	59.44	799.66
MW-12-03	6/1/2021	57	80	859.10	856.71	82.27	59.22	799.88

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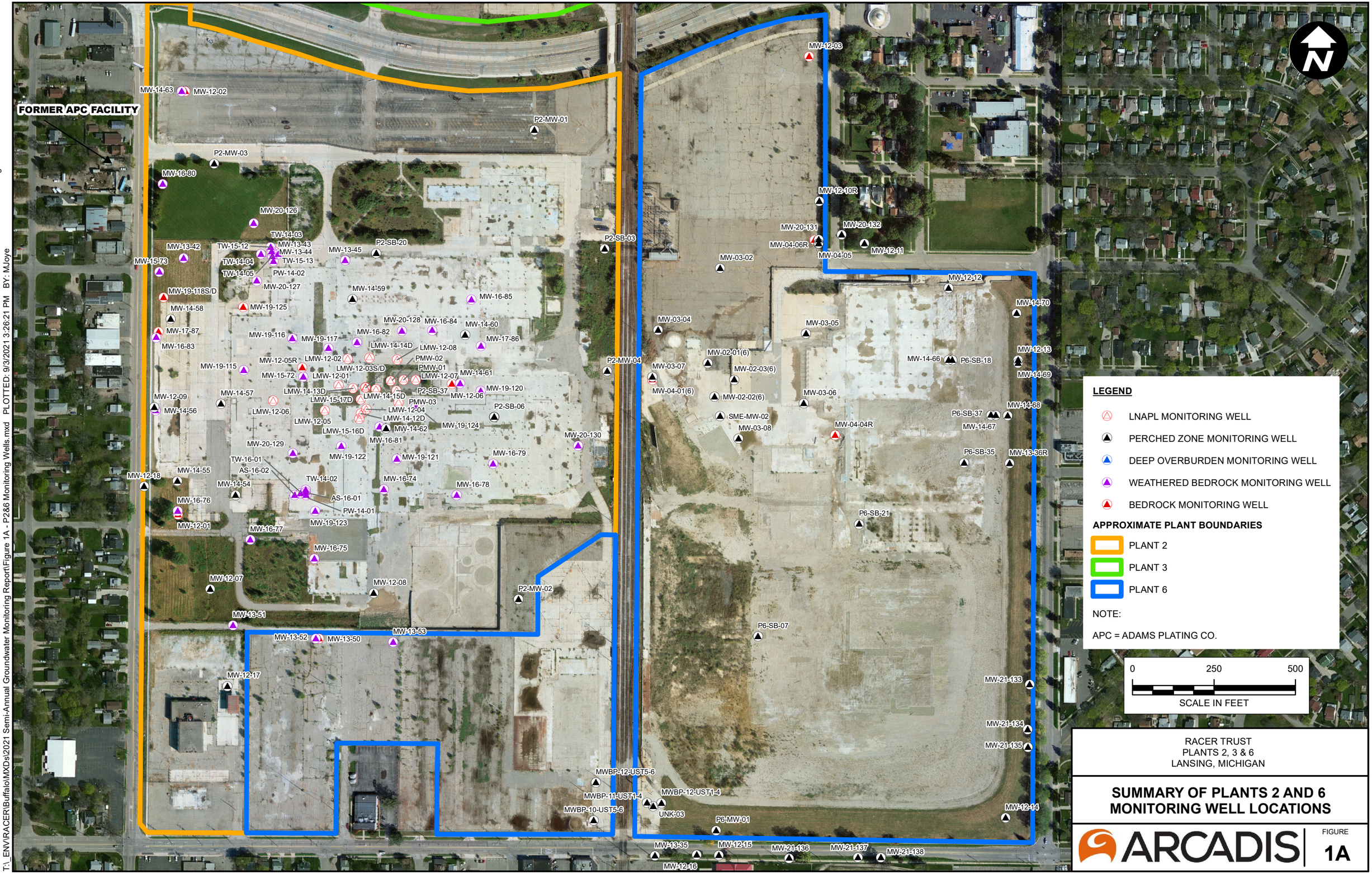
Plant 6 ***(continued)***								
MW-12-12	3/1/2021	13	18	874.34	874.61	17.20	4.90	869.44
MW-12-12	6/1/2021	13	18	874.34	874.61	17.20	9.31	865.03
MW-12-13	3/1/2021	18.5	23.5	882.60	880.51	25.50	9.30	873.30
MW-12-13	6/1/2021	18.5	23.5	882.60	880.51	25.43	12.08	870.52
MW-12-15	3/1/2021	18	23	865.23	865.49	22.83	19.55	845.68
MW-12-16	3/1/2021	28	33	864.24	864.73	32.20	22.51	841.73
MW-13-50	3/1/2021	85	107	872.85	869.93	109.81	76.19	796.66
MW-13-50	6/1/2021	85	107	872.85	869.93	109.81	75.30	797.55
MW-13-52	3/1/2021	70	80	872.50	869.84	81.41	67.85	804.65
MW-13-52	6/1/2021	70	80	872.50	869.84	81.41	67.62	804.88
MW-13-53	6/1/2021	73	83	875.56	873.10	85.42	71.24	804.32
MW-14-67	3/1/2021	13	18	877.76	875.07	20.80	4.50	873.26
MW-14-67	6/1/2021	13	18	877.76	875.07	20.84	6.98	870.78
MW-14-70	3/1/2021	16	21	882.79	880.08	23.10	9.55	873.24
MW-14-70	6/1/2021	16	21	882.79	880.08	23.09	12.44	870.35
MW-20-131	6/1/2021	5	10	862.13	858.70	13.68	9.25	852.88
MW-20-132	6/1/2021	6	11	858.01	858.38	10.80	5.80	852.21
MW-21-133	6/1/2021	10	15	876.67	872.91	18.74	10.22	866.45
MW-21-134	6/1/2021	11	16	872.97	869.38	20.08	10.63	862.34
MW-21-135	6/1/2021	22	27	872.10	868.60	29.55	25.36	846.74
MW-21-136	6/1/2021	9	14	865.91	866.31	13.72	7.49	858.42
MW-21-137	6/1/2021	7	12	866.99	867.50	11.50	9.51	857.48
MW-21-138	6/1/2021	24	29	867.05	867.54	28.63	21.57	845.48
P6-SB-07	3/1/2021	15	20	877.36	874.36	23.60	5.18	872.18
P6-SB-07	6/1/2021	15	20	877.36	874.36	23.63	7.65	869.71

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
DRY = well was dry and depth to water could not be gauged
LNAPL = light nonaqueous phase liquid
msl = mean sea level
NM = not measured
NS = not surveyed
RACER = Revitalizing Auto Communities Environmental Response
TOC = top of casing

Figures



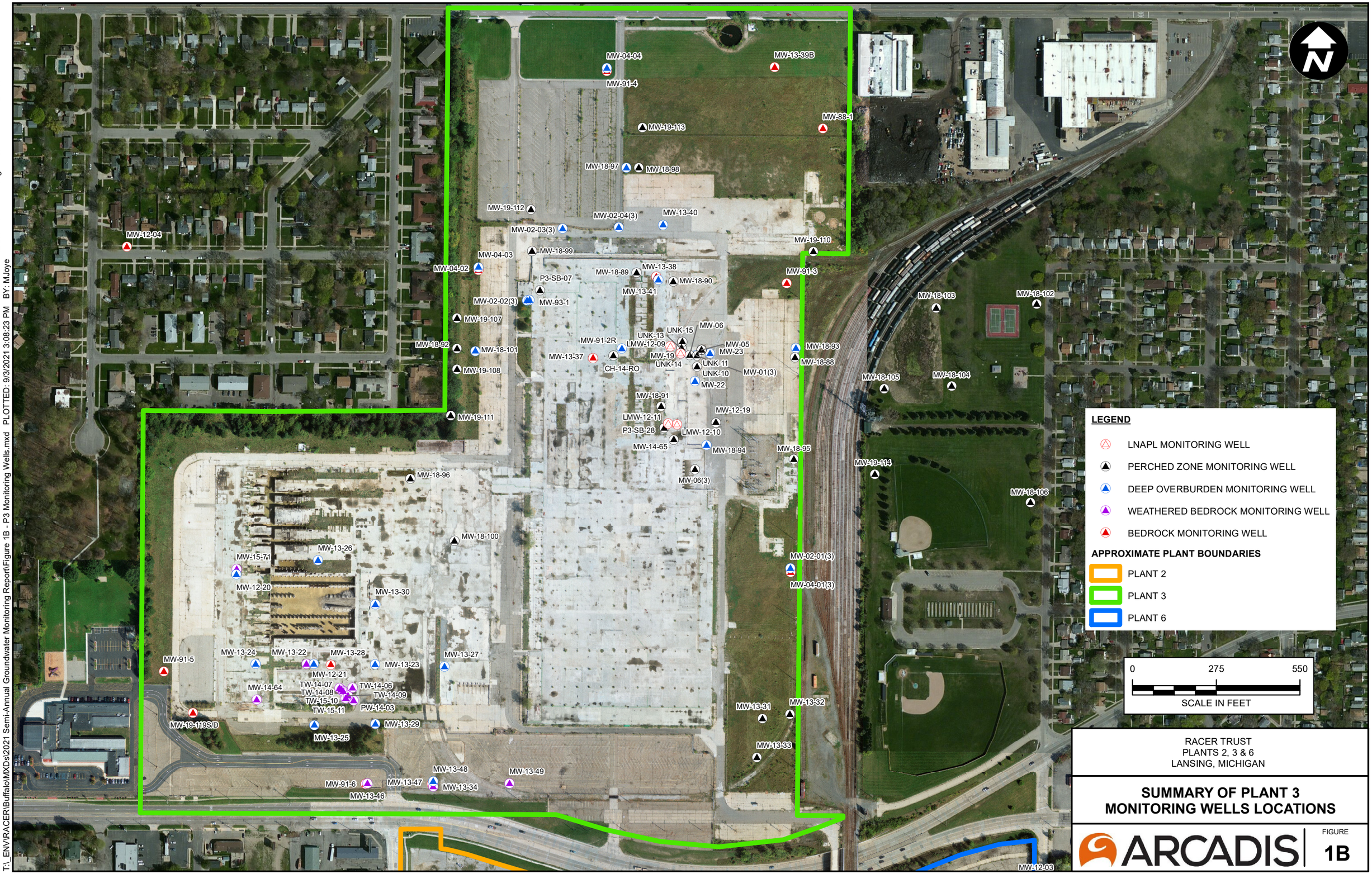
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANTS 2 AND 6 MONITORING WELL LOCATIONS

ARCADIS

FIGURE
1A

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: T. Linder TM: A. Villhauer TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 1A - P2&6 Monitoring Wells.mxd PLOTTED: 9/3/2021 3:26:21 PM BY: MJoye



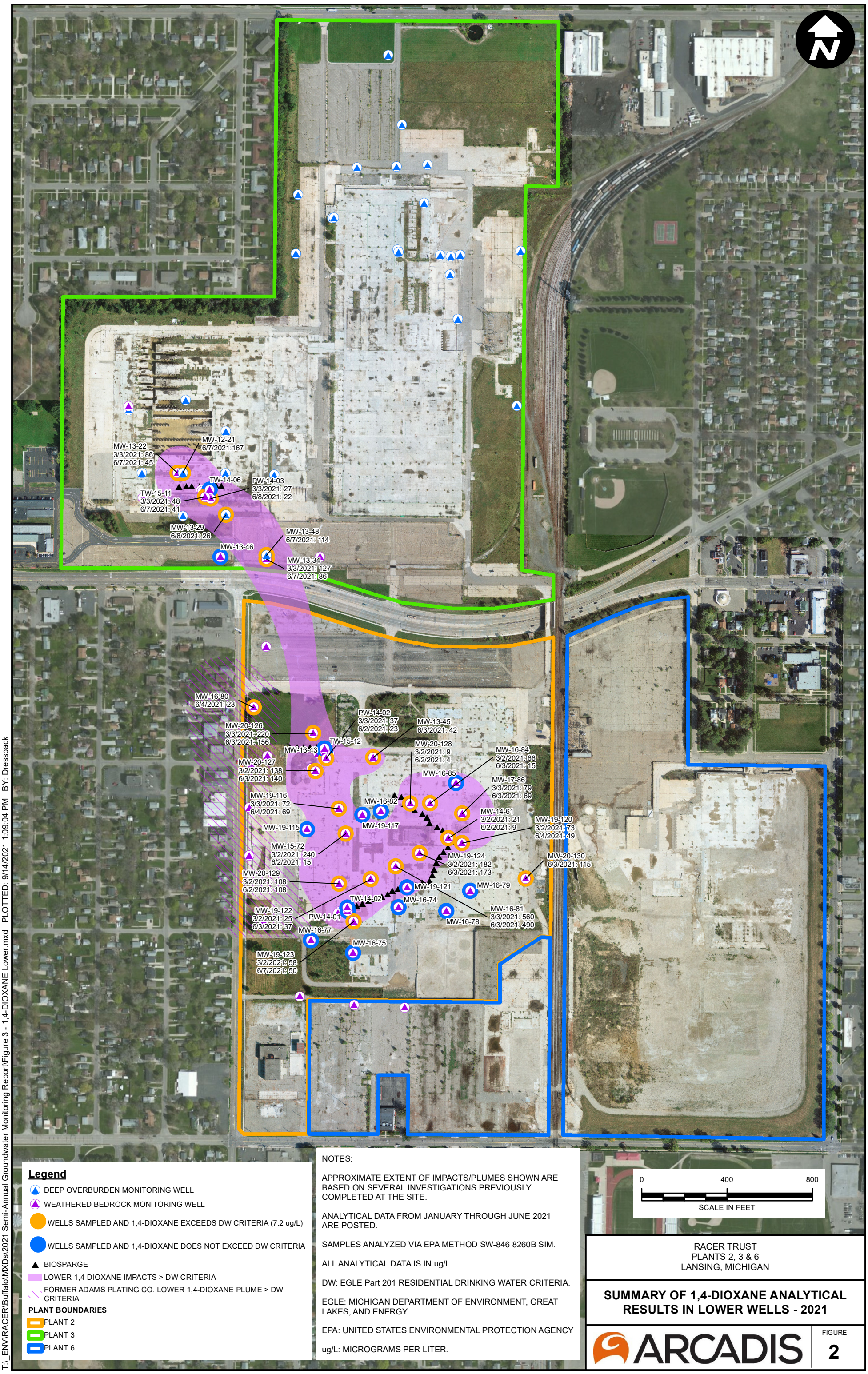
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PLANT 3 MONITORING WELLS LOCATIONS

ARCADIS

FIGURE
1B

CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: T. Linder TM: A. Villhauer TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 1B - P3 Monitoring Wells.mxd PLOTTED: 9/3/2021 3:08:23 PM BY: MJoye



Legend

- DEEP OVERBURDEN MONITORING WELL
- WEATHERED 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
- BIOSPARGE
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA
- FORMER ADAMS PLATING CO. LOWER 1,4-DIOXANE PLUME > 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 JANUARY THROUGH JUNE 2021 ARE POSTED.

SAMPLES ANALYZED VIA EPA METHOD SW-846 8260B SIM.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ug/L: MICROGRAMS PER LITER.

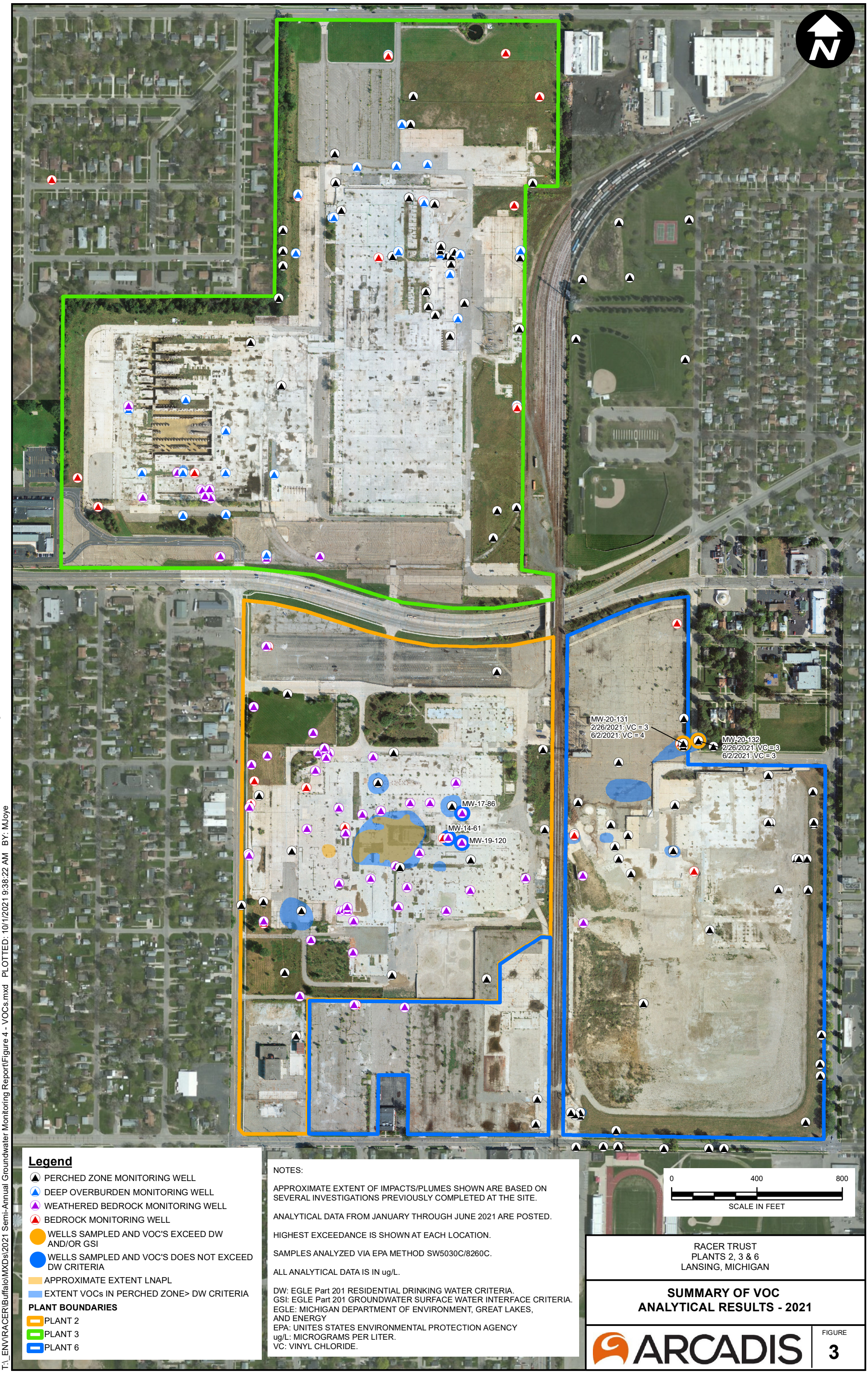
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF 1,4-DIOXANE ANALYTICAL RESULTS IN LOWER WELLS - 2021

ARCADIS

FIGURE
2

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 3 - 1,4-DIOXANE Lower.mxd PLOTTED: 9/14/2021 1:09:04 PM BY: Dressback



Legend

- PERCHED ZONE MONITORING WELL
- DEEP OVERBURDEN MONITORING WELL
- WEATHERED BEDROCK MONITORING WELL
- BEDROCK MONITORING WELL
- WELLS SAMPLED AND VOC'S EXCEED DW AND/OR GSI
- 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 JANUARY THROUGH JUNE 2021 ARE POSTED.

HIGHEST EXCEEDANCE IS SHOWN AT EACH LOCATION.

SAMPLES ANALYZED VIA EPA METHOD SW5030C/8260C.

ALL ANALYTICAL DATA IS IN ug/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.
GSI: EGLE Part 201 GROUNDWATER SURFACE WATER INTERFACE CRITERIA.
EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
EPA: UNITES STATES ENVIRONMENTAL PROTECTION AGENCY
ug/L: MICROGRAMS PER LITER.
VC: VINYL CHLORIDE.

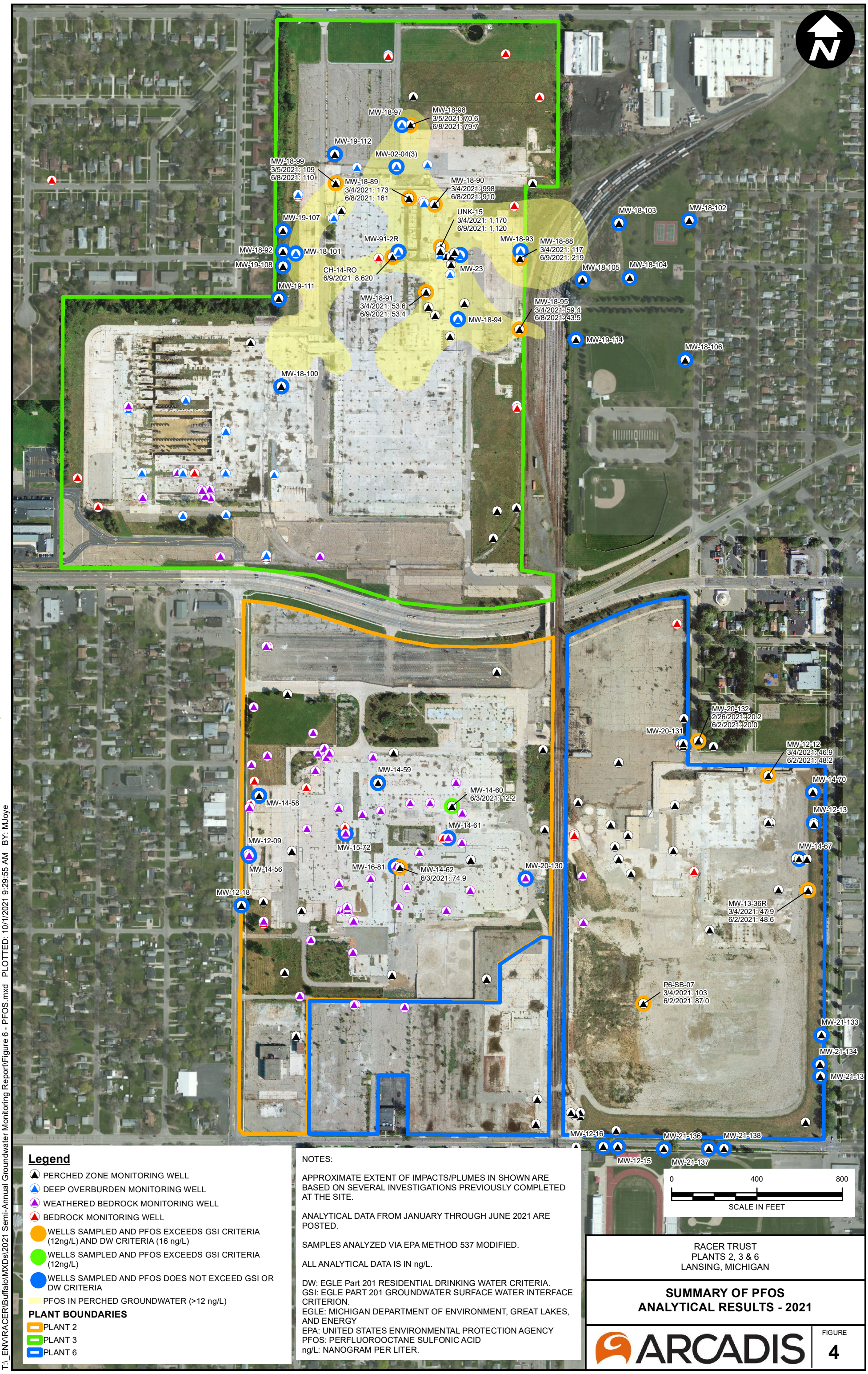
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF VOC ANALYTICAL RESULTS - 2021

ARCADIS

FIGURE
3

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 4 - VOCs.mxd PLOTTED: 10/1/2021 9:38:22 AM BY: MJoye



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 JANUARY THROUGH JUNE 2021 ARE POSTED.

SAMPLES ANALYZED VIA EPA METHOD 537 MODIFIED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.
GSI: EGLE PART 201 GROUNDWATER SURFACE WATER INTERFACE CRITERION.
EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
PFOS: PERFLUOROOCTANE SULFONIC ACID
ng/L: NANOGRAM PER LITER.

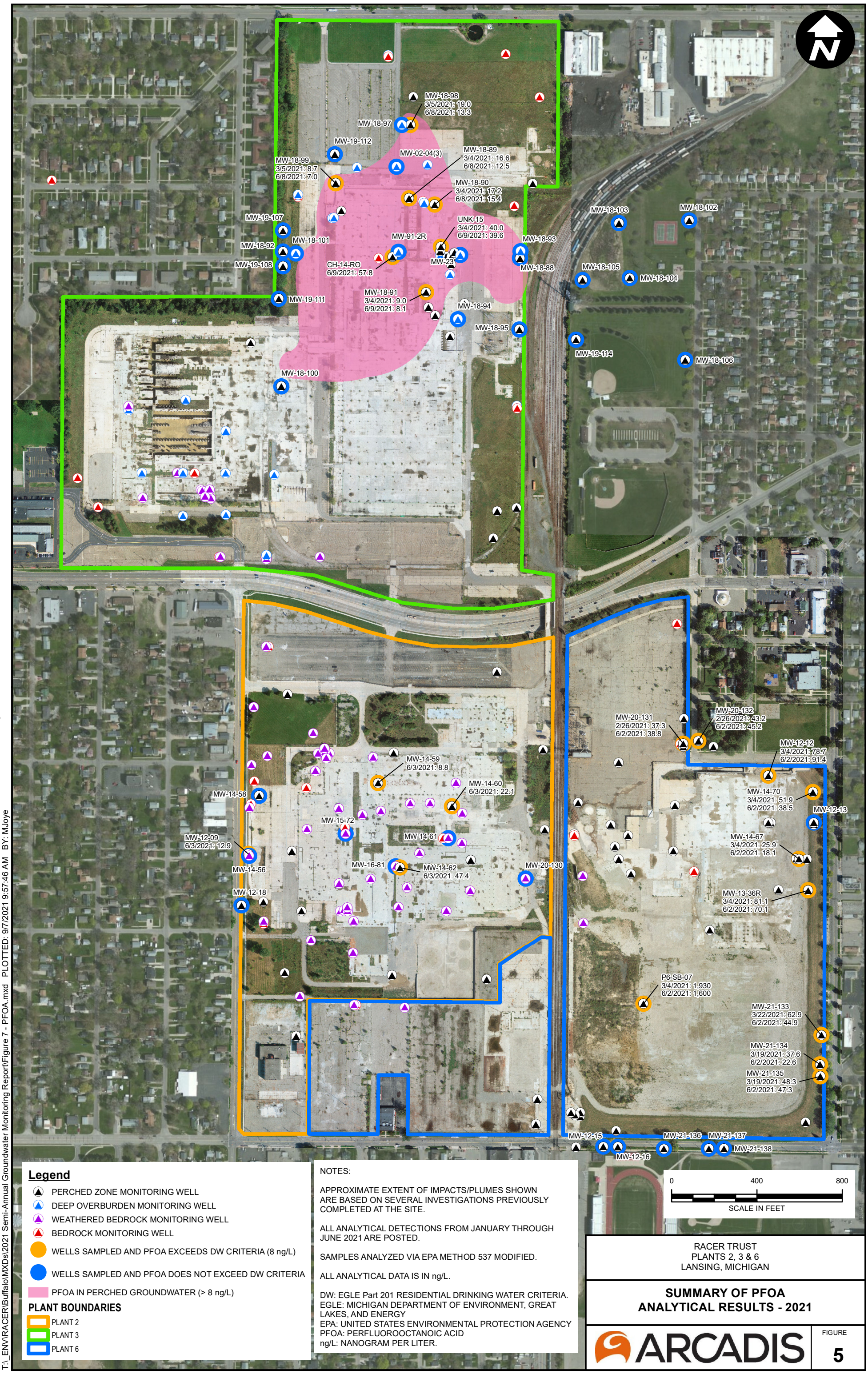
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFOS ANALYTICAL RESULTS - 2021

ARCADIS

FIGURE
4

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 6 - PFOS.mxd PLOTTED: 10/1/2021 9:29:55 AM BY: MJoye



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
- PFOA IN PERCHED GROUNDWATER (> 8 ng/L)

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.

ALL ANALYTICAL DETECTIONS FROM JANUARY THROUGH JUNE 2021 ARE POSTED.

SAMPLES ANALYZED VIA EPA METHOD 537 MODIFIED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.
EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
PFOA: PERFLUOROOCTANOIC ACID
ng/L: NANOGRAM PER LITER.

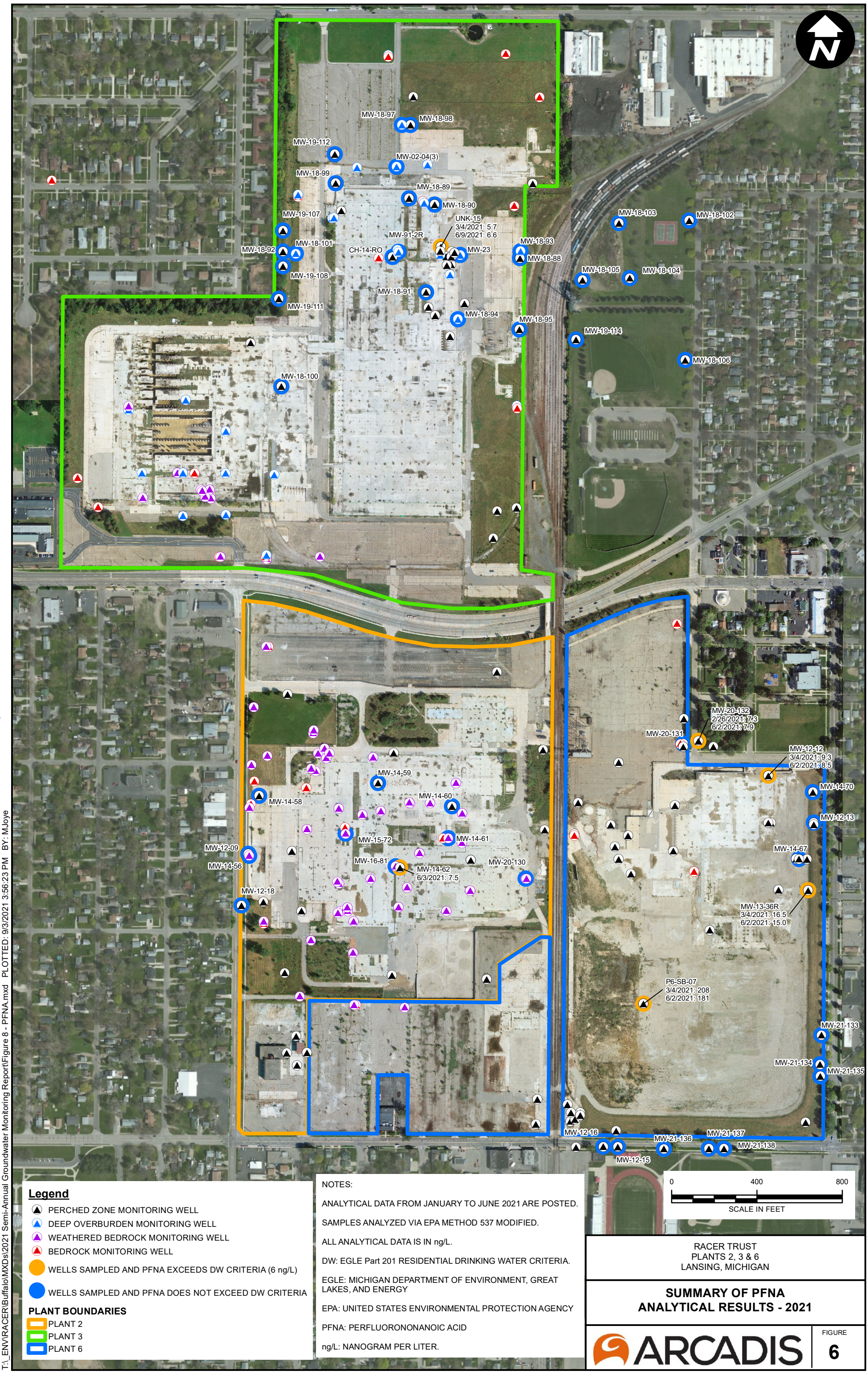
RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFOA ANALYTICAL RESULTS - 2021

ARCADIS

FIGURE
5

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 7 - PFOA.mxd PLOTTED: 9/7/2021 9:57:46 AM 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 JANUARY TO JUNE 2021 ARE POSTED.

SAMPLES ANALYZED VIA EPA METHOD 537 MODIFIED.

ALL ANALYTICAL DATA IS IN ng/L.

DW: EGLE Part 201 RESIDENTIAL DRINKING WATER CRITERIA.

EGLE: MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

EPA: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PFNA: PERFLUORONONANOIC ACID

ng/L: NANOGRAM PER LITER.

RACER TRUST
PLANTS 2, 3 & 6
LANSING, MICHIGAN

SUMMARY OF PFNA ANALYTICAL RESULTS - 2021

ARCADIS

FIGURE
6

CITY: Novi DIV: ENV PIC: J. BARRETT PM: T. LINDER TM: A. VILLHAUER TR: PROJECT NUMBER: 30075941 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
T:_ENV\RACER\Buffalo\MXDs\2021 Semi-Annual Groundwater Monitoring Report\Figure 8 - PFNA.mxd PLOTTED: 9/3/2021 3:56:23 PM BY: MJoye

Attachment 1

Low-Flow Groundwater Sampling Logs – January to June 2021

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-12			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28 degrees °F, Overcast, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.75	**Total Depth (ft-bmp)**	17.2	**Water Column(ft)**	11.45	**Gallons in Well**	1.86
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	10:50	**Volumes Purged**		**Sample ID**	MW-12-12_030421	**Sampled by**	Donald Richmond
Purge Start	10:20	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	10:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
10:30	0	0	200	5.75	--	7.06	0.33	22.6	0.56	6.4	74.4	--	--
10:35	5	5	200	8.56	--	7.26	0.326	12.1	0.37	6.1	57.9	--	--
10:40	5	10	200	8.56	--	7.29	0.348	13.7	0.44	6.2	45.9	--	--
10:45	5	15	200	8.56	--	5.9	0.357	13.2	0.47	5.9	40.3	--	--
10:50	5	20	200	8.56	--	7.3	0.362	13.6	0.49	6	37.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Racer Lansing

Condition of Well: Good condition,Missing bolts

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-13			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28 degrees °F, Overcast, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.42	**Total Depth (ft-bmp)**	25.42	**Water Column(ft)**	16	**Gallons in Well**	2.6
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	13:10	**Volumes Purged**		**Sample ID**	MW-12-13_030421	**Sampled by**	Donald Richmond
Purge Start	12:40	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	13:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	9.42	--	7.35	0.61	5.14	2.72	6.9	29.5	--	--
12:55	5	5	200	10.57	--	7.36	0.61	4.82	2.42	7.5	24.6	--	--
13:00	5	10	200	10.57	--	7.35	0.62	6.26	2.4	7.9	24.4	--	--
13:05	5	15	200	10.57	--	7.35	0.62	6.97	2.4	8	23.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-15			**Date**	03/05/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	22 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	19.71	**Total Depth (ft-bmp)**	22.7	**Water Column(ft)**	2.99	**Gallons in Well**	0.49
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	09:25	**Volumes Purged**		**Sample ID**	MW-12-15	**Sampled by**	Donald Richmond
Purge Start	08:50	**Gallons Purged**		**Replicate/ Code No.**	EB-01_030521	**Sample Type**	Grab
Purge End	09:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	19.71	--	6.57	0.83	106	0.6	7.9	-48.9	--	--
09:00	5	5	200	19.82	--	6.64	0.85	28.9	0.4	8.6	-44.2	--	--
09:05	5	10	200	19.82	--	6.66	0.85	23.7	0.35	8.7	-41.7	--	--
09:10	5	15	200	19.82	--	6.68	0.85	12.2	0.29	8.9	-47.3	--	--
09:15	5	20	200	19.82	--	6.68	0.86	9.36	0.26	9.2	-48.8	--	--
09:20	5	25	200	19.82	--	6.69	0.86	7.48	0.27	9.3	-48.9	Clear	None

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

Comments: Took EB-01_030521 at this location

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: Racer Lansing

Condition of Well: Missing bolts

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-16			**Date**	03/05/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	22 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	22.71	**Total Depth (ft-bmp)**	32.12	**Water Column(ft)**	9.41	**Gallons in Well**	1.53
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	10:50	**Volumes Purged**		**Sample ID**	MW-12-16_030521	**Sampled by**	Donald Richmond
Purge Start	10:10	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	22:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	22.73	--	6.66	1.27	38.1	1.06	8.6	-43.3	--	--
10:25	5	5	200	22.73	--	6.73	1.34	36.5	0.38	9.5	-71.4	--	--
10:30	5	10	200	22.73	--	6.8	1.35	34.6	0.31	9.3	-72.8	--	--
10:35	5	15	200	22.73	--	6.83	1.31	23.1	0.26	9.9	-74.1	--	--
10:40	5	20	200	22.73	--	6.82	1.27	13.6	0.24	10	-72.8	--	--
10:45	5	25	200	22.73	--	6.82	1.22	13	0.24	9.5	-75.4	--	--
10:50	5	30	200	22.73	--	6.81	1.2	11	0.21	9.6	-77.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Racer Lansing

Condition of Well: Missing bolts

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-22			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.81	**Total Depth (ft-bmp)**	96.13	**Water Column(ft)**	31.32	**Gallons in Well**	5.09
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	16:00	**Volumes Purged**		**Sample ID**	MW-13-22_030321	**Sampled by**	Donald Richmond
Purge Start	15:20	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	16:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	64.81	--	6.72	1.48	2	0.24	12.7	-36	--	--
15:40	5	5	200	64.81	--	6.7	1.48	2.8	0.36	12.7	-59.4	--	--
15:45	5	10	200	64.81	--	6.68	1.48	1.88	0.23	12.7	-79.9	--	--
15:50	5	15	200	64.81	--	6.64	1.49	1.11	0.18	12.5	-102.7	--	--
15:55	5	20	200	64.81	--	6.64	1.5	1.18	0.16	12.6	-107.4	--	--
16:00	5	25	200	64.81	--	6.63	1.51	1.55	0.16	12.5	-109.7	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-34			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.7	**Total Depth (ft-bmp)**	79.71	**Water Column(ft)**	20.01	**Gallons in Well**	3.25
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	14:40	**Volumes Purged**		**Sample ID**	MW-13-34_030321	**Sampled by**	Donald Richmond
Purge Start	14:10	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	14:40						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	60.5	--	7.65	1.44	10.1	6.57	13.8	11.5	--	--
14:25	5	5	200	60.5	--	7.64	1.44	4.87	6.73	13.8	15.3	--	--
14:30	5	10	200	60.5	--	7.63	1.44	4.57	6.45	13.9	17	--	--
14:35	5	15	200	60.5	--	7.61	1.44	4.02	6.61	14	19.7	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-36R			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28 degrees °F, Overcast, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.3	**Total Depth (ft-bmp)**	12.6	**Water Column(ft)**	8.3	**Gallons in Well**	1.35
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	15:05	**Volumes Purged**		**Sample ID**	MW-13-36R_030421	**Sampled by**	Donald Richmond
Purge Start	14:30	**Gallons Purged**		**Replicate/ Code No.**	DUP-05	**Sample Type**	Grab
Purge End	15:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	4.3	--	11.71	0.63	70.6	0.3	4.3	-15.2	--	--
14:45	5	5	200	4.3	--	11.78	0.63	18.4	0.2	4.2	-48.7	--	--
14:50	5	10	200	4.3	--	11.79	0.63	14.8	0.2	4.3	-51.8	--	--
14:55	5	15	200	4.3	--	11.78	0.64	11	0.18	4.9	-54.2	--	--
15:00	5	20	200	4.3	--	11.8	0.64	9.55	0.19	4.6	-57.7	--	--
15:05	5	25	200	4.3	--	11.83	0.65	7.47	0.17	4.6	-62.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	4	None

Comments: DUP-05 taken

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-61			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	22 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65	**Total Depth (ft-bmp)**	77.45	**Water Column(ft)**	12.45	**Gallons in Well**	2.02
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	11:50	**Volumes Purged**		**Sample ID**	MW-14-61_030221	**Sampled by**	Donald Richmond
Purge Start	10:50	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	12:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	65	--	6.7	1.45	1100	3.28	8.9	28.4	--	--
11:10	5	5	200	65	--	6.64	1.45	1100	3.17	10.1	15.6	--	--
11:15	5	10	200	65	--	6.77	1.45	866	3.18	9.7	-6.5	--	--
11:20	5	15	200	65	--	6.78	1.45	606	3.09	10	-8.6	--	--
11:25	5	20	200	65	--	6.82	1.45	637	3.06	9.8	-12.5	--	--
11:30	5	25	200	65	--	6.83	1.42	503	3.24	9	-15.8	--	--
11:35	5	30	200	65	--	6.82	1.45	1100	3	10	-20.2	--	--
11:40	5	35	200	65	--	6.82	1.41	1100	2.9	9	-31.5	--	--
11:50	10	45	200	65	--	6.83	1.46	1100	1.85	10.4	-57.1	Brown	None

Constituent Sampled	Container	Number	Preservative
Nitrate/Nitrite,TKN, Total Pho	See COC	5	Various

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-67			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28 degrees °F, Overcast, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.55	**Total Depth (ft-bmp)**	20.81	**Water Column(ft)**	16.26	**Gallons in Well**	2.64
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	14:05	**Volumes Purged**		**Sample ID**	MW-14-67_030421	**Sampled by**	Donald Richmond
Purge Start	13:30	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	14:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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
13:40	0	0	200	5.05	--	7.28	0.96	4.75	2.3	6.8	43.2	--	--
13:45	5	5	200	5.05	--	7.31	0.97	6.69	1.6	7	-4.5	--	--
13:50	5	10	200	5.05	--	7.3	0.98	6.62	1.46	7.1	-22	--	--
13:55	5	15	200	5.05	--	7.3	0.98	6.03	1.32	7.2	-39.4	--	--
14:00	5	20	200	5.05	--	7.28	0.99	6.23	1.12	7.6	-38.9	--	--
14:05	5	25	200	5.05	--	7.28	0.99	6.62	1.09	7.5	-39	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-70			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28 degrees °F, Overcast, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.58	**Total Depth (ft-bmp)**	23.08	**Water Column(ft)**	13.5	**Gallons in Well**	2.19
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	12:05	**Volumes Purged**		**Sample ID**	MW-14-70_030421	**Sampled by**	Donald Richmond
Purge Start	11:35	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	12:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	9.58	--	7.08	0.89	3.78	2.04	6.5	60.8	--	--
11:50	5	5	200	10.41	--	7.31	0.89	1.86	0.76	6.5	22.2	--	--
11:55	5	10	200	10.41	--	7.31	0.89	1.53	0.69	6.2	18	--	--
12:00	5	15	200	10.41	--	7.31	0.89	2.27	0.65	6.4	13.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-15-72			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.05	**Total Depth (ft-bmp)**	70.28	**Water Column(ft)**	14.23	**Gallons in Well**	2.31
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	16:20	**Volumes Purged**		**Sample ID**	MW-15-72_030221	**Sampled by**	Donald Richmond
Purge Start	15:40	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	16:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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
16:00	0	0	200	56.05	--	6.89	0.88	7.64	0.46	11.7	-73.9	--	--
16:05	5	5	200	58	--	6.91	0.94	14.1	0.32	11.8	-85.4	--	--
16:10	5	10	200	58	--	6.9	0.99	5.68	0.22	11.7	-95.3	--	--
16:15	5	15	200	58	--	6.89	1.01	4.88	0.21	11.6	-96.2	--	--
16:20	5	20	200	58	--	6.89	1.02	4.02	0.19	11.5	-98.6	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-74			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.36	**Total Depth (ft-bmp)**	73.68	**Water Column(ft)**	12.32	**Gallons in Well**	2
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	12:00	**Volumes Purged**		**Sample ID**	MW-16-74_030321	**Sampled by**	Donald Richmond
Purge Start	11:10	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	12:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	61.36	--	7.05	1.23	9.63	1.59	11	-60.2	--	--
11:25	5	5	200	61.8	--	6.96	1.45	1.58	0.78	11.1	-84.8	--	--
11:30	5	10	200	61.8	--	6.93	1.51	4.82	0.66	11.1	-96.9	--	--
11:35	5	15	200	61.8	--	6.89	1.6	87.8	0.51	11.6	-108.9	--	--
11:40	5	20	200	61.8	--	6.88	1.62	181	0.47	11.6	-109.8	--	--
11:45	5	25	200	61.8	--	6.87	1.64	199	0.46	12.1	-109.7	--	--
11:50	5	30	200	61.8	--	6.87	1.64	281	0.41	12	-109	--	--
11:55	5	35	200	61.8	--	6.87	1.64	284	0.39	12	-109.5	--	--
12:00	5	40	200	61.8	--	6.87	1.63	277	0.43	12	-110.1	Cloudy	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-78			**Date**	03/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	41.0 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.75	**Total Depth (ft-bmp)**	76.17	**Water Column(ft)**	14.42	**Gallons in Well**	2.34
MP Elevation		**Pump Intake (ft-bmp)**	73.67	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	11:05	**Volumes Purged**	0.90	**Sample ID**	MW-16-78_030321	**Sampled by**	Austin Westhuis
Purge Start	10:30	**Gallons Purged**	2.11	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	11:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	61.8	0.26	7.02	1.34	21.9	2.29	11.4	-4.2	--	--
10:40	5	5	200	61.8	0.53	6.93	1.3	10.6	0.7	11.6	-17.3	--	--
10:45	5	10	200	61.8	0.79	6.93	1.3	3.99	0.35	11.6	-25.3	--	--
10:50	5	15	200	61.8	1.06	6.93	1.3	2.14	0.25	11.7	-28.8	--	--
10:55	5	20	200	61.8	1.32	6.94	1.3	1.7	0.22	11.7	-31.2	--	--
11:00	5	25	200	61.8	1.59	6.93	1.3	1.55	0.23	11.7	-32.3	--	--
11:05	5	30	200	61.8	1.85	6.94	1.3	1.31	0.23	11.6	-32.6	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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-79			**Date**	03/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	44.1 degrees F and Clear. The wind is blowing W at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.07	**Total Depth (ft-bmp)**	75.74	**Water Column(ft)**	13.67	**Gallons in Well**	2.22
MP Elevation		**Pump Intake (ft-bmp)**	73.24	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	12:20	**Volumes Purged**	0.83	**Sample ID**	MW-16-79_030321	**Sampled by**	Austin Westhuis
Purge Start	11:50	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	12:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	64.31	0.26	7.12	0.7	21.8	0.41	12.6	-29.3	--	--
12:00	5	5	200	64.61	0.53	7.14	0.68	4.81	0.22	12.5	-37.5	--	--
12:05	5	10	200	64.8	0.79	7.14	0.67	1.79	0.23	12.4	-40.9	--	--
12:10	5	15	200	64.83	1.06	7.15	0.67	1.55	0.22	12.4	-43.4	--	--
12:15	5	20	200	64.85	1.32	7.15	0.67	1.35	0.21	12.4	-43.7	--	--
12:20	5	25	200	64.85	1.59	7.15	0.67	1.18	0.2	12.3	-42.1	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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-81			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.7	**Total Depth (ft-bmp)**	77.22	**Water Column(ft)**	13.52	**Gallons in Well**	2.2
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	13:10	**Volumes Purged**		**Sample ID**	MW-16-81_030321	**Sampled by**	Donald Richmond
Purge Start	12:45	**Gallons Purged**		**Replicate/ Code No.**	DUP-02_030321	**Sample Type**	Grab
Purge End	13:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	64.5	--	6.52	2.65	23.7	0.28	14.4	-56.2	--	--
13:00	5	5	200	64.5	--	6.53	2.71	25.6	0.21	14.4	-57.3	--	--
13:05	5	10	200	64.5	--	6.54	2.69	23.1	0.2	14.1	-58	Clear	None

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

Comments: DUP-02 taken

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-82			**Date**	03/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	46.9 degrees F and Clear. The wind is blowing W/SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.32	**Total Depth (ft-bmp)**	77.15	**Water Column(ft)**	13.83	**Gallons in Well**	2.25
MP Elevation		**Pump Intake (ft-bmp)**	74.65	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	14:30	**Volumes Purged**	1.06	**Sample ID**	MW-16-82_030321	**Sampled by**	Austin Westhuis
Purge Start	13:50	**Gallons Purged**	2.38	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	14:35						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	64.02	0.26	7.11	0.92	42.9	3.02	12.7	-38.8	--	--
14:00	5	5	200	64.26	0.53	7.12	0.93	32	2.86	12.9	-52.5	--	--
14:05	5	10	200	64.37	0.79	7.11	0.94	11.5	0.33	13.5	-60.8	--	--
14:10	5	15	200	64.37	1.06	7.1	0.95	5.86	0.31	13.4	-61.9	--	--
14:15	5	20	200	64.37	1.32	7.08	0.95	3.26	0.3	13.2	-62	--	--
14:20	5	25	200	64.37	1.59	7.08	0.95	2.18	0.3	13.3	-62.5	--	--
14:25	5	30	200	64.37	1.85	7.08	0.95	2.26	0.29	13.2	-62.5	--	--
14:30	5	35	200	64.37	2.11	7.08	0.95	2.01	0.29	13.2	-62.6	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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-84			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.62	**Total Depth (ft-bmp)**	81.12	**Water Column(ft)**	15.5	**Gallons in Well**	2.52
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	13:10	**Volumes Purged**		**Sample ID**	MW-16-84_030221	**Sampled by**	Donald Richmond
Purge Start	12:35	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	13:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	65.62	--	6.88	0.84	7.56	0.81	10	-10.7	--	--
12:55	5	5	200	67.82	--	6.87	0.95	24.7	1.37	9.4	-32.2	--	--
13:00	5	10	200	67.82	--	6.88	0.95	16.5	2.2	9.2	-35.5	--	--
13:05	5	15	200	67.82	--	6.89	0.96	14	1.32	9.3	-41.3	--	--
13:10	5	20	200	67.82	--	6.89	0.97	14.2	1.69	9.1	-43.1	Clear	None

Constituent Sampled	Container	Number	Preservative
Nitrate/Nitrite,TKN, Total Pho	See COC	5	Various

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-17-86			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.86	**Total Depth (ft-bmp)**	81.43	**Water Column(ft)**	18.57	**Gallons in Well**	3.02
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	10:35	**Volumes Purged**		**Sample ID**	MW-17-86_030321	**Sampled by**	Donald Richmond
Purge Start	10:10	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	10:35						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	62.86	--	6.78	1.32	1.4	0.55	11	-74	--	--
10:25	5	5	200	62.98	--	6.84	1.34	5.94	0.23	11	-96.3	--	--
10:30	5	10	200	62.98	--	6.84	1.34	4.88	0.21	11	-102.9	--	--
10:35	5	15	200	62.98	--	6.83	1.34	4.8	0.2	11.2	-111.2	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-88			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28.0 degrees F and Cloudy. The wind is blowing N at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	3.35	**Total Depth (ft-bmp)**	15	**Water Column(ft)**	11.65	**Gallons in Well**	1.89
MP Elevation		**Pump Intake (ft-bmp)**	12.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	13:30	**Volumes Purged**	0.42	**Sample ID**	MW-18-88_030421	**Sampled by**	Billy Cobern
Purge Start	13:00	**Gallons Purged**	0.79	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	13:35						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	3.45	0.13	6.29	0.655	18.7	0.66	4.1	246.1	--	--
13:10	5	5	100	3.45	0.26	6.97	0.634	12.5	0.27	3.6	240.8	--	--
13:15	5	10	100	3.45	0.40	6.97	0.629	9.89	0.15	2.9	237	--	--
13:20	5	15	100	3.45	0.53	6.98	0.616	7.78	0.1	2.9	233.5	--	--
13:25	5	20	100	3.45	0.66	6.99	0.616	7.05	0.11	2.9	230.5	--	--
13:30	5	25	100	3.45	0.79	6.99	0.617	7.21	0.1	2.9	227.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-89			**Date**	03/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	27.0 degrees F and Cloudy. The wind is blowing N at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.43	**Total Depth (ft-bmp)**	15.6	**Water Column(ft)**	8.17	**Gallons in Well**	1.33
MP Elevation		**Pump Intake (ft-bmp)**	13.1	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	12:15	**Volumes Purged**	1.39	**Sample ID**	MW-18-89_030421	**Sampled by**	Austin Westhuis
Purge Start	11:45	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	12:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	7.89	0.26	8.07	0.51	3.88	0.54	6.2	117.5	--	--
11:55	5	5	200	8.2	0.53	8.04	0.51	2.13	0.25	5.9	116.5	--	--
12:00	5	10	200	8.31	0.79	8.02	0.5	1.64	0.23	5.9	114.2	--	--
12:05	5	15	200	8.35	1.06	8	0.5	1.44	0.22	5.9	113.8	--	--
12:10	5	20	200	8.38	1.32	7.99	0.5	1.34	0.22	6	112.2	--	--
12:15	5	25	200	8.39	1.59	7.99	0.5	1.3	0.21	6	111.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-90			**Date**	03/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	28.0 degrees F and Cloudy. The wind is blowing N at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.76	**Total Depth (ft-bmp)**	23.15	**Water Column(ft)**	13.39	**Gallons in Well**	2.18
MP Elevation		**Pump Intake (ft-bmp)**	20.65	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	13:40	**Volumes Purged**	1.09	**Sample ID**	MW-18-90_030421	**Sampled by**	Austin Westhuis
Purge Start	13:00	**Gallons Purged**	2.38	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	13:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	9.76	0.26	12.49	1.5	11.7	1.28	9.3	14.5	--	--
13:10	5	5	200	9.76	0.53	12.52	1.53	9.56	1.09	9.3	4.1	--	--
13:15	5	10	200	9.76	0.79	12.52	1.56	7.83	0.84	9.4	-2.5	--	--
13:20	5	15	200	9.76	1.06	12.52	1.57	5.61	0.78	9.3	-6.1	--	--
13:25	5	20	200	9.76	1.32	12.52	1.59	5.01	0.73	9.4	-9.4	--	--
13:30	5	25	200	9.76	1.59	12.52	1.6	4.62	0.6	9.3	-13.8	--	--
13:35	5	30	200	9.76	1.85	12.52	1.63	4.11	0.59	9.3	-14	--	--
13:40	5	35	200	9.76	2.11	12.53	1.64	3.77	0.58	9.3	-14.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-91			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	30.0 degrees F and Mostly Cloudy. The wind is blowing N/NW at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.21	**Total Depth (ft-bmp)**	14.98	**Water Column(ft)**	9.77	**Gallons in Well**	1.59
MP Elevation		**Pump Intake (ft-bmp)**	12.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	16:10	**Volumes Purged**	1.00	**Sample ID**	MW-18-91	**Sampled by**	Billy Cobern
Purge Start	15:10	**Gallons Purged**	1.59	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	16:15						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	6.55	0.13	7.69	0.711	19.2	0.16	6.2	266.7	--	--
15:20	5	5	100	6.99	0.26	7.68	0.716	14.6	0.13	6	261.8	--	--
15:25	5	10	100	7.2	0.40	7.68	0.716	12.1	0.08	6.2	257.7	--	--
15:30	5	15	100	7.49	0.53	7.68	0.717	10.3	0.11	5.8	252.3	--	--
15:35	5	20	100	7.85	0.66	7.69	0.717	9.45	0.1	6.6	237.2	--	--
15:40	5	25	100	7.97	0.79	7.69	0.718	9.19	0.1	6.5	231.6	--	--
15:45	5	30	100	8.18	0.92	7.69	0.716	8.92	0.1	6.4	219.3	--	--
15:50	5	35	100	8.35	1.06	7.68	0.715	8.67	0.1	6.7	206.7	--	--
15:55	5	40	100	8.28	1.19	7.69	0.719	7.07	0.1	6.1	191.6	--	--
16:00	5	45	100	8.28	1.32	7.69	0.715	7.01	0.1	6.2	189.2	--	--
16:05	5	50	100	8.28	1.45	7.68	0.714	6.94	0.1	6.2	187.7	--	--
16:10	5	55	100	8.28	1.59	7.67	0.713	6.73	0.1	6.2	186.1	Clear	None

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

Comments: All parameters stable. Drawdown stabilized at a depth greater than .30'.

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-95			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28.0 degrees F and Cloudy. The wind is blowing N/NW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.49	**Total Depth (ft-bmp)**	12.45	**Water Column(ft)**	5.96	**Gallons in Well**	0.97
MP Elevation		**Pump Intake (ft-bmp)**	10	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	14:35	**Volumes Purged**	0.95	**Sample ID**	MW-18-95_030421	**Sampled by**	Billy Cobern
Purge Start	14:00	**Gallons Purged**	0.92	**Replicate/ Code No.**	DUP-04_030421	**Sample Type**	Grab
Purge End	14:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	6.59	0.13	7.52	0.562	41.1	5.65	3.5	246.4	--	--
14:10	5	5	100	6.59	0.26	7.45	0.561	19.7	5.45	3.7	251.1	--	--
14:15	5	10	100	6.59	0.40	7.3	0.564	15.7	5.55	2.9	260.8	--	--
14:20	5	15	100	6.59	0.53	7.26	0.559	12.3	5.47	3.3	261.3	--	--
14:25	5	20	100	6.59	0.66	7.32	0.555	9.98	5.12	3.6	262.6	--	--
14:30	5	25	100	6.59	0.79	7.31	0.555	9.63	5.13	3.7	262.1	--	--
14:35	5	30	100	6.59	0.92	7.39	0.559	9.34	5.19	3.5	258.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	4	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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-98			**Date**	03/05/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	21.9 degrees F and Clear. The wind is blowing W at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.72	**Total Depth (ft-bmp)**	14.9	**Water Column(ft)**	10.18	**Gallons in Well**	1.65
MP Elevation		**Pump Intake (ft-bmp)**	12.4	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	09:35	**Volumes Purged**	1.12	**Sample ID**	MW-18-98_030521	**Sampled by**	Austin Westhuis
Purge Start	09:05	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	09:40						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	4.77	0.26	6.94	0.427	4.89	2.18	4.6	51.1	--	--
09:15	5	5	200	4.81	0.53	7.09	0.415	2.11	1.48	4.3	32.1	--	--
09:20	5	10	200	4.85	0.79	7.16	0.412	1.91	0.95	4.3	15.1	--	--
09:25	5	15	200	4.87	1.06	7.2	0.409	1.33	0.91	4.3	14.9	--	--
09:30	5	20	200	4.88	1.32	7.2	0.408	1.24	0.89	4.3	14.7	--	--
09:35	5	25	200	4.88	1.59	7.2	0.406	1.2	0.88	4.3	14.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-99			**Date**	03/05/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	26.1 degrees F and Clear. The wind is blowing W/NW at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.56	**Total Depth (ft-bmp)**	16.85	**Water Column(ft)**	12.29	**Gallons in Well**	2
MP Elevation		**Pump Intake (ft-bmp)**	14.35	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	10:25	**Volumes Purged**	0.92	**Sample ID**	MW-18-99_030521	**Sampled by**	Austin Westhuis
Purge Start	09:55	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	10:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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
10:00	0	0	200	5.49	0.26	7.7	1.51	12.6	1.09	6.6	35.1	--	--
10:05	5	5	200	6.02	0.53	7.76	1.59	4.05	0.34	6.9	12.5	--	--
10:10	5	10	200	6.21	0.79	7.76	1.59	2.44	0.16	6.9	12.2	--	--
10:15	5	15	200	6.25	1.06	7.76	1.58	2.04	0.15	6.8	11.7	--	--
10:20	5	20	200	6.25	1.32	7.76	1.56	1.71	0.14	6.8	11.5	--	--
10:25	5	25	200	6.25	1.59	7.76	1.56	1.38	0.14	6.7	11.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-103			**Date**	03/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	27.0 degrees F and Cloudy. The wind is blowing N at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.81	**Total Depth (ft-bmp)**	10.7	**Water Column(ft)**	9.89	**Gallons in Well**	1.61
MP Elevation		**Pump Intake (ft-bmp)**	8.2	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	09:40	**Volumes Purged**	0.98	**Sample ID**	MW-18-103_030421	**Sampled by**	Austin Westhuis
Purge Start	09:15	**Gallons Purged**	1.59	**Replicate/ Code No.**	NA	**Sample Type**	Grab
Purge End	09:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:20	0	0	200	0.88	0.26	6.78	0.448	14.7	3.35	5.5	79.4	--	--
09:25	5	5	200	0.94	0.53	6.88	0.433	4.33	4.3	5.5	62.2	--	--
09:30	5	10	200	0.97	0.79	6.91	0.433	1.9	2.98	5	56.3	--	--
09:35	5	15	200	0.97	1.06	6.93	0.434	1.56	2.9	5.1	51	--	--
09:40	5	20	200	0.97	1.32	6.95	0.43	1.22	2.87	5.1	48.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-105			**Date**	03/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	28.0 degrees F and Cloudy. The wind is blowing N at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.04	**Total Depth (ft-bmp)**	11.2	**Water Column(ft)**	11.16	**Gallons in Well**	1.81
MP Elevation		**Pump Intake (ft-bmp)**	8.7	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	10:45	**Volumes Purged**	0.88	**Sample ID**	MW-18-105_030421	**Sampled by**	Austin Westhuis
Purge Start	10:20	**Gallons Purged**	1.59	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	10:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
10:25	0	0	200	0.04	0.26	7.15	0.434	12.3	1.9	5.5	47.4	--	--
10:30	5	5	200	0.04	0.53	7.15	0.431	3.73	1.45	5.4	45.2	--	--
10:35	5	10	200	0.04	0.79	7.14	0.425	2.78	1.43	5.3	43.8	--	--
10:40	5	15	200	0.04	1.06	7.13	0.42	2.31	1.41	5.2	43.2	--	--
10:45	5	20	200	0.04	1.32	7.12	0.42	2.01	1.4	5.2	41	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-115			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.52	**Total Depth (ft-bmp)**	80.32	**Water Column(ft)**	21.8	**Gallons in Well**	3.54
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	09:30	**Volumes Purged**		**Sample ID**	MW-19-115_030321	**Sampled by**	Donald Richmond
Purge Start	09:00	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	09:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:15	0	0	200	58.52	--	6.91	1.36	6.94	0.6	9.3	-60.8	--	--
09:20	5	5	200	58.52	--	6.93	1.39	5.4	0.63	8.2	-70.2	--	--
09:24	4	9	200	58.52	--	6.91	1.47	6.66	0.55	8.6	-73.5	--	--
09:30	6	15	200	58.52	--	6.91	1.47	4.67	0.6	7.9	-77.5	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-116			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32.0 degrees F and Clear. The wind is blowing SW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.39	**Total Depth (ft-bmp)**	73.22	**Water Column(ft)**	16.83	**Gallons in Well**	2.73
MP Elevation		**Pump Intake (ft-bmp)**	70.7	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	09:45	**Volumes Purged**	0.48	**Sample ID**	MW-19-116_030321	**Sampled by**	Billy Cobern
Purge Start	08:55	**Gallons Purged**	1.32	**Replicate/ Code No.**	DUP-01_030321	**Sample Type**	Grab
Purge End	09:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:00	0	0	100	56.45	0.13	6.83	1.69	28.5	4.92	9.6	117.2	--	--
09:05	5	5	100	56.45	0.26	6.89	1.74	27.1	0.92	9.4	43.5	--	--
09:10	5	10	100	56.45	0.40	6.91	1.72	26.2	0.47	10.8	14.4	--	--
09:15	5	15	100	56.45	0.53	6.94	1.75	19.2	0.36	10.8	-4.6	--	--
09:20	5	20	100	56.45	0.66	6.95	1.76	15.2	0.26	10.7	-20	--	--
09:25	5	25	100	56.45	0.79	6.95	1.77	9.51	0.22	10.5	-24.2	--	--
09:30	5	30	100	56.45	0.92	6.95	1.76	8.02	0.23	10.7	-24.9	--	--
09:35	5	35	100	56.45	1.06	6.94	1.76	8.01	0.22	10.8	-25.8	--	--
09:40	5	40	100	56.45	1.19	6.94	1.77	7.54	0.23	10.6	-26.6	--	--
09:45	5	45	100	56.45	1.32	6.95	1.77	7.26	0.22	10.6	-27.4	Clear	None

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

Comments: Breathing zone normal

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-117			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	37.9 degrees F and Clear. The wind is blowing W/SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.84	**Total Depth (ft-bmp)**	62.8	**Water Column(ft)**	3.96	**Gallons in Well**	0.64
MP Elevation		**Pump Intake (ft-bmp)**	61.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	11:05	**Volumes Purged**	2.06	**Sample ID**	MW-19-117_030321	**Sampled by**	Billy Cobern
Purge Start	10:15	**Gallons Purged**	1.32	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	11:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	59.04	0.13	7.13	1.12	298	0.75	12.9	-60.4	--	--
10:25	5	5	100	59.13	0.26	6.94	1.09	198	0.47	13.4	-70.3	--	--
10:30	5	10	100	59.13	0.40	7.02	1.09	59.7	0.62	13.3	-79.1	--	--
10:35	5	15	100	59.13	0.53	7.03	1.09	55	0.73	12.9	-79.1	--	--
10:40	5	20	100	59.13	0.66	7.04	1.08	42.3	0.88	13.2	-78.3	--	--
10:45	5	25	100	59.13	0.79	7.05	1.09	36.2	1	13.3	-77.4	--	--
10:50	5	30	100	59.13	0.92	7.01	1.07	27.4	1.19	13.6	-72.6	--	--
10:55	5	35	100	59.13	1.06	7.03	1.08	25.1	1.19	13.5	-73.3	--	--
11:00	5	40	100	59.13	1.19	7.04	1.09	24.3	1.21	13.5	-73.5	--	--
11:05	5	45	100	59.13	1.32	7.04	1.08	23.5	1.22	13.6	-73.5	Clear	None

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

Comments: Breathing zone normal.

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-120			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	32 degrees °F, Sunny, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.62	**Total Depth (ft-bmp)**	74	**Water Column(ft)**	10.38	**Gallons in Well**	1.69
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	15:00	**Volumes Purged**		**Sample ID**	MW-19-120_030221	**Sampled by**	Donald Richmond
Purge Start	14:00	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	15:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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
14:10	0	0	200	63.22	--	6.91	1.29	80.4	4.13	10	34.1	--	--
14:15	5	5	200	63.22	--	6.89	1.3	33.3	3.27	10.4	28.3	--	--
14:20	5	10	200	63.22	--	6.86	1.33	23.7	2.15	10.5	24	--	--
14:25	5	15	200	63.22	--	6.83	1.39	42	1.36	10.4	16.7	--	--
14:30	5	20	200	63.22	--	6.82	1.42	39	0.94	10.1	9.6	--	--
14:35	5	25	200	63.22	--	6.82	1.43	53.3	0.79	10.2	6.8	--	--
14:40	5	30	200	63.22	--	6.81	1.5	52.7	0.28	10.8	-13.5	--	--
14:45	5	35	200	63.22	--	6.81	1.5	43.7	0.25	10.3	-21.3	--	--
14:50	5	40	200	63.22	--	6.8	1.51	37.4	0.19	10.2	-35.9	--	--
14:55	5	45	200	63.22	--	6.79	1.53	28.4	0.17	11.1	-48.7	--	--
15:00	5	50	200	63.22	--	6.79	1.52	19.3	0.16	10.8	-56.9	Clear	None

Constituent Sampled	Container	Number	Preservative
Nitrate/Nitrite,TKN, Total Pho	See COC	5	Various

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-121			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28.0 degrees F and Clear. The wind is blowing S/SW at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.73	**Total Depth (ft-bmp)**	73.6	**Water Column(ft)**	8.87	**Gallons in Well**	1.44
MP Elevation		**Pump Intake (ft-bmp)**	71.1	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	13:00	**Volumes Purged**	1.10	**Sample ID**	MW-19-121_030221	**Sampled by**	Billy Cobern
Purge Start	12:00	**Gallons Purged**	1.59	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	13:08						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	64.99	0.13	7.59	1.47	852	4.61	10.2	80.1	--	--
12:10	5	5	100	64.97	0.26	7.58	1.48	784	4.21	10.1	82	--	--
12:15	5	10	100	64.97	0.40	7.58	1.48	667	3.61	10.3	85.8	--	--
12:20	5	15	100	64.97	0.53	7.58	1.48	498	2.89	10.7	87.3	--	--
12:25	5	20	100	64.97	0.66	7.58	1.49	367	2.6	10.8	87.3	--	--
12:30	5	25	100	64.97	0.79	7.57	1.49	319	2.27	10.4	88.9	--	--
12:35	5	30	100	64.97	0.92	7.57	1.49	285	2.19	10.4	88.9	--	--
12:40	5	35	100	64.97	1.06	7.57	1.49	274	2.14	10.4	88.9	--	--
12:45	5	40	100	64.97	1.19	7.57	1.5	252	2.2	10.3	89	--	--
12:50	5	45	100	64.97	1.32	7.57	1.5	233	2.33	10.6	89.1	--	--
12:55	5	50	100	64.97	1.45	7.57	1.49	212	2.19	10.5	89	--	--
13:00	5	55	100	64.97	1.59	7.57	1.49	219	2.13	10.6	88.8	Clear	None

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

Comments: Breathing zone normal.

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-122			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	36.0 degrees F and Clear. The wind is blowing SW at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.49	**Total Depth (ft-bmp)**	67.89	**Water Column(ft)**	5.4	**Gallons in Well**	0.88
MP Elevation		**Pump Intake (ft-bmp)**	66	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	15:45	**Volumes Purged**	1.80	**Sample ID**	MW-19-122_030221	**Sampled by**	Billy Cobern
Purge Start	14:45	**Gallons Purged**	1.59	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	15:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	62.73	0.13	6.52	4.12	999	6.03	8.9	110	--	--
14:55	5	5	100	62.73	0.26	6.54	4.1	999	1.89	9.2	103.5	--	--
15:00	5	10	100	62.73	0.40	6.56	4.11	982	0.49	9.5	96.3	--	--
15:05	5	15	100	62.73	0.53	6.57	4.13	815	1.04	9	93.7	--	--
15:10	5	20	100	62.73	0.66	6.57	4.11	801	0.89	8.9	93.7	--	--
15:15	5	25	100	62.73	0.79	6.57	4.07	753	0.58	9.5	92.4	--	--
15:20	5	30	100	62.73	0.92	6.58	4.08	701	0.48	9.3	91.9	--	--
15:25	5	35	100	62.73	1.06	6.57	4.08	641	0.39	9.4	90.5	--	--
15:30	5	40	100	62.73	1.19	658	4.08	612	0.38	9.3	89.8	--	--
15:35	5	45	100	62.73	1.32	6.57	4.07	543	0.38	9.5	89.3	--	--
15:40	5	50	100	62.73	1.45	6.57	4.06	478	0.37	9.6	88.8	--	--
15:45	5	55	100	62.73	1.59	6.57	4.07	421	0.38	9.4	88.2	Grayish Brown	None

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

Comments: Breathing zone normal.

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-123			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	34.0 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.59	**Total Depth (ft-bmp)**	73.8	**Water Column(ft)**	12.21	**Gallons in Well**	1.98
MP Elevation		**Pump Intake (ft-bmp)**	71.3	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	14:05	**Volumes Purged**	0.47	**Sample ID**	MW-19-123_030221	**Sampled by**	Billy Cobern
Purge Start	13:30	**Gallons Purged**	0.92	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	14:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	61.69	0.13	6.71	2.12	62.6	7.54	8.1	111.9	--	--
13:40	5	5	100	61.69	0.26	6.69	2.16	60.2	6.7	7.9	109.2	--	--
13:45	5	10	100	61.69	0.40	6.69	2.16	20.6	5.25	8.4	106.2	--	--
13:50	5	15	100	61.69	0.53	6.68	2.18	14.3	5.4	8.1	106.2	--	--
13:55	5	20	100	61.69	0.66	6.67	2.18	9.96	5.4	8.2	105.7	--	--
14:00	5	25	100	61.69	0.79	6.67	2.18	9.74	5.41	8.2	105.7	--	--
14:05	5	30	100	61.69	0.92	6.67	2.18	9.74	5.49	8.2	105.2	Clear	None

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

Comments: Breathing zone normal

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-124			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	39.0 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.1	**Total Depth (ft-bmp)**	72.22	**Water Column(ft)**	9.12	**Gallons in Well**	1.48
MP Elevation		**Pump Intake (ft-bmp)**	69.7	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	17:15	**Volumes Purged**	0.98	**Sample ID**	MW-19-124_030221	**Sampled by**	Billy Cobern
Purge Start	16:20	**Gallons Purged**	1.45	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	17:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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
16:25	0	0	100	63.3	0.13	7.01	2.81	441	3.55	8.5	54.7	--	--
16:30	5	5	100	63.3	0.26	6.86	2.87	401	0.95	8.8	39.2	--	--
16:35	5	10	100	63.3	0.40	6.83	2.89	330	0.41	9.3	24.3	--	--
16:40	5	15	100	63.3	0.53	6.81	2.91	149	0.34	8.6	8.8	--	--
16:45	5	20	100	63.3	0.66	6.8	2.93	102	0.24	8.7	4.3	--	--
16:50	5	25	100	63.3	0.79	6.8	2.92	84.3	0.25	8.7	2.1	--	--
16:55	5	30	100	63.3	0.92	6.8	2.93	57.8	0.21	8.9	-2	--	--
17:00	5	35	100	63.3	1.06	6.8	2.92	50.1	0.2	8.9	-4.5	--	--
17:05	5	40	100	63.3	1.19	6.8	2.93	48.3	0.18	8.7	-4.9	--	--
17:10	5	45	100	63.3	1.32	6.8	2.93	46.7	0.17	8.6	-5.2	--	--
17:15	5	50	100	63.3	1.45	6.81	2.93	44.8	0.17	8.7	-5.5	Clear	None

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

Comments: Breathing zone normal

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-126			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	45.0 degrees F and Clear. The wind is blowing W/SW at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.05	**Total Depth (ft-bmp)**	76.05	**Water Column(ft)**	17	**Gallons in Well**	2.76
MP Elevation		**Pump Intake (ft-bmp)**	73.55	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	14:15	**Volumes Purged**	0.57	**Sample ID**	MW-20-126_030321	**Sampled by**	Billy Cobern
Purge Start	13:15	**Gallons Purged**	1.59	**Replicate/ Code No.**	MW-20-126_030321 (MS/MSD)	**Sample Type**	Grab
Purge End	14:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	59.25	0.13	6.78	3.02	768	2.47	12.2	82.5	--	--
13:25	5	5	100	59.35	0.26	6.79	3.03	399	1.8	12.2	76.1	--	--
13:30	5	10	100	59.35	0.40	6.81	3.04	213	1.47	12.2	69.1	--	--
13:35	5	15	100	59.35	0.53	6.82	3.04	131	1.35	12.2	66.9	--	--
13:40	5	20	100	59.35	0.66	6.84	3.04	103	1.24	12.2	64	--	--
13:45	5	25	100	59.35	0.79	6.85	3.05	198	1.06	12.2	61.6	--	--
13:50	5	30	100	59.35	0.92	6.85	3.04	98.7	1.18	12.3	60.7	--	--
13:55	5	35	100	59.35	1.06	6.85	3.03	53.8	1.06	12.2	60	--	--
14:00	5	40	100	59.35	1.19	6.85	3.04	47.1	1.08	12.2	59.6	--	--
14:05	5	45	100	59.35	1.32	6.86	3.03	20.1	1.02	12.3	58.9	--	--
14:10	5	50	100	59.35	1.45	6.86	3.03	19.8	1.08	12.3	58.8	--	--
14:15	5	55	100	59.35	1.59	6.86	3.03	18.9	1.04	12.3	58.6	Yellow	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	9	HCL

Comments: Breathing zone normal, well is bubbling from the biosparge system. MS/MSD collected here.

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-127			**Date**	03/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	26.1 degrees F and Clear. The wind is blowing S at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.07	**Total Depth (ft-bmp)**	78.7	**Water Column(ft)**	13.63	**Gallons in Well**	2.21
MP Elevation		**Pump Intake (ft-bmp)**	76.2	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	11:10	**Volumes Purged**	0.48	**Sample ID**	MW-20-127_020321	**Sampled by**	Billy Cobern
Purge Start	10:30	**Gallons Purged**	1.06	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	11:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	65.07	0.13	6.78	3.26	14.2	4.76	1.6	50.1	--	--
10:40	5	5	100	65.35	0.26	6.79	3.25	10.4	4.79	1.6	48.4	--	--
10:45	5	10	100	65.35	0.40	6.79	3.24	8.89	4.68	1.6	47.5	--	--
10:50	5	15	100	65.35	0.53	6.8	3.24	8.32	4.65	1.6	46.6	--	--
10:55	5	20	100	65.35	0.66	6.8	3.23	8.41	4.66	1.7	45.8	--	--
11:00	5	25	100	65.35	0.79	6.8	3.22	8.41	4.4	1.7	45	--	--
11:05	5	30	100	65.35	0.92	6.8	3.22	8.32	4.07	1.7	44.3	--	--
11:10	5	35	100	65.35	1.06	6.81	3.22	8.09	4	1.7	43.6	Clear	None

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

Comments: Breathing zone normal

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-128			**Date**	03/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	36.0 degrees F and Clear. The wind is blowing SW at 16.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.51	**Total Depth (ft-bmp)**	70.05	**Water Column(ft)**	8.54	**Gallons in Well**	1.39
MP Elevation		**Pump Intake (ft-bmp)**	68.55	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	15:45	**Volumes Purged**	2.47	**Sample ID**	MW-20-128_030221	**Sampled by**	Austin Westhuis
Purge Start	14:45	**Gallons Purged**	3.43	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	15:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	61.91	0.26	7.64	2.01	374	9.02	13.4	58.2	--	--
14:55	5	5	200	61.42	0.53	7.64	2.01	322	9.32	13.3	60	--	--
15:00	5	10	200	61.27	0.79	7.61	2.01	445	9.32	13.5	61.5	--	--
15:05	5	15	200	59.61	1.06	7.53	2	411	9.15	13.4	62.5	--	--
15:10	5	20	200	59.3	1.32	7.55	1.98	341	9.6	13.5	63.5	--	--
15:15	5	25	200	59.41	1.59	7.65	1.99	422	9.84	13.6	63.5	--	--
15:20	5	30	200	59	1.85	7.68	1.99	366	9.84	13.5	64	--	--
15:25	5	35	200	59.66	2.11	7.69	1.99	473	9.88	13.6	64.1	--	--
15:30	5	40	200	59.49	2.38	7.7	1.99	412	9.88	13.6	64.1	--	--
15:35	5	45	200	59.31	2.64	7.71	1.99	492	9.8	13.5	63.9	--	--
15:40	5	50	200	59.55	2.91	7.72	1.99	451	9.67	13.6	63.8	--	--
15:45	5	55	200	59.67	3.17	7.74	1.99	401	9.69	13.6	63.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
Nitrate	125 mL Plastic	1	None
TKN and Total Phosphorus	250 mL Plastic	1	H2SO4

Comments: Unable to stabilize turbidity. Well located next to an actively running air sparge well.

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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-129			**Date**	03/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	39.0 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.1	**Total Depth (ft-bmp)**	70.98	**Water Column(ft)**	11.88	**Gallons in Well**	1.93
MP Elevation		**Pump Intake (ft-bmp)**	68.48	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	16:50	**Volumes Purged**	0.96	**Sample ID**	MW-20-129_030221	**Sampled by**	Austin Westhuis
Purge Start	16:20	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	16:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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
16:25	0	0	200	59.58	0.26	6.87	3.42	36.6	2.35	12.4	80	--	--
16:30	5	5	200	59.64	0.53	6.91	3.11	16.3	0.57	9.2	72.2	--	--
16:35	5	10	200	59.66	0.79	6.91	3.07	4.32	0.51	9	70.3	--	--
16:40	5	15	200	59.66	1.06	6.91	3.08	2.83	0.49	9	69.7	--	--
16:45	5	20	200	59.67	1.32	6.91	3.1	2.12	0.49	9	69.2	--	--
16:50	5	25	200	59.67	1.59	6.91	3.12	1.9	0.48	9	69	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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	P6-SB-07			**Date**	03/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	28 degrees °F, Overcast, winds at mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.31	**Total Depth (ft-bmp)**	23.62	**Water Column(ft)**	18.31	**Gallons in Well**	2.98
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	16:50	**Volumes Purged**		**Sample ID**	P6-SB-07_030421	**Sampled by**	Donald Richmond
Purge Start	16:00	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	16:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
16:10	0	0	200	5.31	--	7.79	0.353	7.37	4.26	6.2	10.8	--	--
16:15	5	5	200	5.55	--	7.74	0.351	9.6	4.11	5.9	2.3	--	--
16:20	5	10	200	5.55	--	7.69	0.351	8.67	3.86	6.1	-1	--	--
16:25	5	15	200	5.55	--	7.63	0.351	9.81	3.55	6.4	-10.8	--	--
16:30	5	20	200	5.55	--	7.59	0.348	8.47	3.14	6.4	-24.9	--	--
16:35	5	25	200	5.55	--	7.57	0.348	9.26	2.77	6.7	-35.1	--	--
16:40	5	30	200	5.55	--	7.52	0.347	9.05	2.4	6.6	-56.8	--	--
16:45	5	35	200	5.55	--	7.5	0.346	8.9	2.46	6.5	-62	--	--
16:50	5	40	200	5.55	--	7.5	0.344	9.58	2.1	6.7	-66.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	PW-14-02			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	44.1 degrees F and Clear. The wind is blowing W at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.8	**Total Depth (ft-bmp)**	85.21	**Water Column(ft)**	22.41	**Gallons in Well**	32.77
MP Elevation		**Pump Intake (ft-bmp)**	82.7	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	12:05	**Volumes Purged**	0.02	**Sample ID**	PW-14-02_030321	**Sampled by**	Billy Cobern
Purge Start	11:40	**Gallons Purged**	0.66	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	12:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	62.82	0.13	7.66	2.38	17.3	9.77	13.2	22.6	--	--
11:50	5	5	100	62.82	0.26	7.57	2.37	12.5	9.22	13.4	21.3	--	--
11:55	5	10	100	62.82	0.40	7.6	2.38	9.03	8.79	13.1	24.1	--	--
12:00	5	15	100	62.82	0.53	7.61	2.38	9.42	8.89	13.1	25.1	--	--
12:05	5	20	100	62.82	0.66	7.6	2.37	9.83	9.04	13.1	26.3	Clear	None

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

Comments: Breathing zone normal

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	PW-14-03			**Date**	03/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	50.0 degrees F and Clear. The wind is blowing W at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.75	**Total Depth (ft-bmp)**	97	**Water Column(ft)**	30.25	**Gallons in Well**	44.24
MP Elevation		**Pump Intake (ft-bmp)**	94.5	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	16:05	**Volumes Purged**	0.04	**Sample ID**	PW-14-03_030321	**Sampled by**	Austin Westhuis
Purge Start	15:35	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	16:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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
15:40	0	0	200	66.88	0.26	7.17	2.64	30.4	9.62	12.8	31	--	--
15:45	5	5	200	66.88	0.53	7.11	2.7	15.9	9.46	13	32.2	--	--
15:50	5	10	200	66.88	0.79	7.11	2.76	10.5	9.42	13.6	34.3	--	--
15:55	5	15	200	66.88	1.06	7.12	2.76	4.41	9.36	13.4	38.6	--	--
16:00	5	20	200	66.88	1.32	7.12	2.76	3.69	9.14	13.3	39.2	--	--
16:05	5	25	200	66.88	1.59	7.11	2.75	3.51	9.12	13.2	39.9	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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	TW-14-02			**Date**	03/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	32.0 degrees F and Clear. The wind is blowing SW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.44	**Total Depth (ft-bmp)**	71.79	**Water Column(ft)**	11.35	**Gallons in Well**	1.84
MP Elevation		**Pump Intake (ft-bmp)**	69.29	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	09:55	**Volumes Purged**	1.87	**Sample ID**	TW-14-02_030321	**Sampled by**	Austin Westhuis
Purge Start	08:55	**Gallons Purged**	3.43	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	10:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:00	0	0	200	60.71	0.26	7.61	4.03	182	10.18	12.6	76	--	--
09:05	5	5	200	60.74	0.53	7.56	4.01	105	9.56	12.2	55.1	--	--
09:10	5	10	200	59.25	0.79	7.35	3.93	188	10.7	11.4	51.7	--	--
09:15	5	15	200	58.67	1.06	7.42	3.93	143	11.85	11.5	51.4	--	--
09:20	5	20	200	57.1	1.32	7.75	3.93	546	11.99	11.6	49.6	--	--
09:25	5	25	200	56.9	1.59	7.82	3.95	410	11.63	11.9	48.6	--	--
09:30	5	30	200	54.45	1.85	7.88	3.93	389	12.94	11.7	47.3	--	--
09:35	5	35	200	53.01	2.11	7.9	4.02	392	12.98	12	46.1	--	--
09:40	5	40	200	52.87	2.38	7.91	4.01	568	13.29	12.1	46.2	--	--
09:45	5	45	200	52.85	2.64	7.89	3.98	326	12.62	11.9	47.4	--	--
09:50	5	50	200	51.73	2.91	7.87	3.98	259	12.83	12	48.2	--	--
09:55	5	55	200	51.4	3.17	7.86	3.99	312	12.61	12	49	Clear	None

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

Comments: Unable to stabilize turbidity and water level. Well located next to an actively running air sparge well.

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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	TW-14-06			**Date**	03/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	26.1 degrees F and Clear. The wind is blowing S at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.35	**Total Depth (ft-bmp)**	88.39	**Water Column(ft)**	29.04	**Gallons in Well**	4.72
MP Elevation		**Pump Intake (ft-bmp)**	85.89	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	12:00	**Volumes Purged**	0.73	**Sample ID**	TW-14-06_030221	**Sampled by**	Austin Westhuis
Purge Start	11:00	**Gallons Purged**	3.43	**Replicate/ Code No.**	DUP-03_030221	**Sample Type**	Grab
Purge End	12:15						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	59.35	0.26	7.23	2.48	1000	11.7	11.6	63.4	--	--
11:10	5	5	200	59.35	0.53	7.22	2.39	1000	11.92	10.2	65.4	--	--
11:15	5	10	200	59.35	0.79	7.23	2.38	1000	11.74	9.8	65.8	--	--
11:20	5	15	200	59.36	1.06	7.24	2.45	1000	11.32	9.8	65.4	--	--
11:25	5	20	200	59.36	1.32	7.25	2.47	1000	10.46	10	65.5	--	--
11:30	5	25	200	59.38	1.59	7.25	2.46	1000	10.64	10.3	65.9	--	--
11:35	5	30	200	59.38	1.85	7.25	2.48	1000	10.67	10.3	65.7	--	--
11:40	5	35	200	59.38	2.11	7.26	2.48	1000	10.72	10.3	65.8	--	--
11:45	5	40	200	59.39	2.38	7.26	2.51	1000	10.48	10.3	66.2	--	--
11:50	5	45	200	59.39	2.64	7.26	2.5	1000	10.66	10.3	66.9	--	--
11:55	5	50	200	59.39	2.64	7.25	2.51	1000	10.87	10.3	67.2	--	--
12:00	5	55	200	59.4	3.17	7.25	2.48	1000	10.44	10.3	67.5	Brown	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	6	HCL
Nitrate	125 mL Plastic	2	None
TKN and Total Phosphorus	250 mL Plastic	2	H2SO4

Comments: Unable to stabilize turbidity or dissolved oxygen. All turbidity readings were above range and recorded as 1000 ntu. Well located next to an actively running air sparge well.

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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	TW-15-11			**Date**	03/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	48.0 degrees F and Clear. The wind is blowing W at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.69	**Total Depth (ft-bmp)**	86.9	**Water Column(ft)**	21.21	**Gallons in Well**	3.45
MP Elevation		**Pump Intake (ft-bmp)**	84.4	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	15:25	**Volumes Purged**	0.23	**Sample ID**	TW-15-11_030321	**Sampled by**	Billy Cobern
Purge Start	14:55	**Gallons Purged**	0.79	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	15:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	65.91	0.13	6.38	3.53	132	9.01	10.9	70.4	--	--
15:05	5	5	100	65.91	0.26	6.36	3.5	102	10.65	11.8	76.5	--	--
15:10	5	10	100	65.91	0.40	6.33	354	77.5	10.41	12.7	79.4	--	--
15:15	5	15	100	65.91	0.53	6.99	3.55	55.3	9.77	12.8	81.9	--	--
15:20	5	20	100	65.91	0.66	6.98	3.56	53.1	9.74	12.5	85.6	--	--
15:25	5	25	100	65.91	0.79	6.98	3.56	52.4	9.45	12.5	89	Clear	None

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

Comments: Breathing zone normal, located inside biosparge area

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	TW-15-12			**Date**	03/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	32.0 degrees F and Clear. The wind is blowing S/SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.22	**Total Depth (ft-bmp)**	76.7	**Water Column(ft)**	12.48	**Gallons in Well**	8.11
MP Elevation		**Pump Intake (ft-bmp)**	74.2	**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	14:20	**Volumes Purged**	0.42	**Sample ID**	TW-15-12_030221	**Sampled by**	Austin Westhuis
Purge Start	13:20	**Gallons Purged**	3.43	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	14:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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
13:25	0	0	200	64.22	0.26	7.27	1.47	112	10.3	12.2	76	--	--
13:30	5	5	200	64.22	0.53	7.2	1.6	72.3	9.47	12.3	73.3	--	--
13:35	5	10	200	64.22	0.79	7.16	1.59	51.8	9.1	12.3	67	--	--
13:40	5	15	200	64.22	1.06	7.15	1.61	33.7	9.07	12.5	64.9	--	--
13:45	5	20	200	64.22	1.32	7.18	1.61	84.6	9.98	12.5	62.5	--	--
13:50	5	25	200	64.2	1.59	7.21	1.62	133.6	10.45	12.5	62.1	--	--
13:55	5	30	200	64.2	1.85	7.27	1.61	102.1	11.27	12.3	61.9	--	--
14:00	5	35	200	64.2	2.11	7.33	1.63	171	10.95	12.5	61.1	--	--
14:05	5	40	200	64.2	2.38	7.34	1.63	155	10.99	12.4	60.6	--	--
14:10	5	45	200	64.2	2.64	7.37	1.63	147	10.99	12.4	60.3	--	--
14:15	5	50	200	64.2	2.91	7.37	1.63	122	10.96	12.4	60.2	--	--
14:20	5	55	200	64.2	3.17	7.36	1.62	129	10.91	12.4	60.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	3	HCL
Nitrate	125 mL Plastic	1	None
TKN and Total Phosphorus	250 mL Plastic	1	H2SO4

Comments: Unable to stabilize turbidity. Well located next to an actively running air sparge well.

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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	UNK-15			**Date**	03/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	30.0 degrees F and Mostly Cloudy. The wind is blowing N/NW at 11.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.4	**Total Depth (ft-bmp)**	15.65	**Water Column(ft)**	15.25	**Gallons in Well**	9.91
MP Elevation		**Pump Intake (ft-bmp)**	13.15	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	15:00	**Volumes Purged**	0.19	**Sample ID**	UNK-15_030421	**Sampled by**	Austin Westhuis
Purge Start	14:30	**Gallons Purged**	1.85	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	15:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	0.4	0.26	8.33	0.46	3.88	2.53	5.8	31.9	--	--
14:40	5	5	200	0.4	0.53	8.14	0.46	2.93	2.05	6	26.5	--	--
14:45	5	10	200	0.4	0.79	8.13	0.459	2.17	2.07	5.5	25.2	--	--
14:50	5	15	200	0.4	1.06	8.11	0.462	1.71	1.94	5.5	21	--	--
14:55	5	20	200	0.4	1.32	8.13	0.459	1.55	1.96	5.5	21	--	--
15:00	5	25	200	0.4	1.59	8.11	0.459	1.41	1.94	5.5	20.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: See figure.

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	CH-14-RO			**Date**	6/9/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	9.63	**Total Depth (ft-bmp)**	14.8	**Water Column(ft)**	5.17	**Gallons in Well**	0.84
MP Elevation	NA	**Pump Intake (ft-bmp)**	13.5	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:00	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	12:30						
Purge End:	12:55						

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
12:35	0	200	9.95	0.00	7.1	0.7	0.02	0.23	20.5	117.7	Clear	None
12:40	5	200	9.95	0.00	7.08	0.7	0.02	0.15	21.1	116.7	Clear	None
12:45	5	200	9.95	0.00	7.09	0.69	0.02	0.12	20.7	116.6	Clear	None
12:50	5	200	9.95	0.00	7.09	0.7	0.02	0.13	20	115.5	Clear	None
12:55	5	200	9.95	0.00	7.08	0.69	0.02	0.12	19.5	116.6	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-02-04(3)			**Date**	6/7/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	58.4	**Total Depth (ft-bmp)**	84	**Water Column(ft)**	25.6	**Gallons in Well**	4.16
MP Elevation	NA	**Pump Intake (ft-bmp)**	80	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:10	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:10						
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	200	59.2	0.00	6.56	6.38	99.1	1.33	18.2	-28.7	Clear	None
09:30	5	200	59.2	0.00	6.67	6.5	87.2	0.58	18.7	-42.1	Clear	None
09:35	5	200	59.2	0.00	6.7	6.68	88.7	0.35	18.5	-51.2	Clear	None
09:40	5	200	59.2	0.00	6.73	6.75	79.6	0.28	18.3	-56.6	Clear	None
09:45	5	200	59.2	0.00	6.75	6.84	77.8	0.25	18.1	-60.2	Clear	None
09:50	5	200	59.2	0.00	6.76	6.79	81.1	0.22	18.4	-62.2	Clear	None
09:55	5	200	59.2	0.00	6.77	6.81	79	0.22	18.1	-64.4	Clear	None
10:00	5	200	59.2	0.00	6.77	6.77	77.7	0.22	18.5	-64.9	Clear	None
10:05	5	200	59.2	0.00	6.78	6.83	79.9	0.22	18.4	-66.2	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-09			**Date**	06/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	71.1 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.32	**Total Depth (ft-bmp)**	21.6	**Water Column(ft)**	8.28	**Gallons in Well**	1.35
MP Elevation		**Pump Intake (ft-bmp)**	19.1	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**	2.35	**Sample ID**	MW-12-09_060321	**Sampled by**	Austin Westhuis
Purge Start	12:00	**Gallons Purged**	3.17	**Replicate/ Code No.**			
Purge End	12:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	13	0.26	7	1.72	333	0.13	14.1	-39	Clear	None
12:10	5	5	200	13	0.53	7	1.7	224	0.11	13.9	-40.6	Clear	None
12:15	5	10	200	13	0.79	7	1.67	103	0.1	13.9	-43.8	Clear	None
12:20	5	15	200	13	1.06	7.01	1.61	90.1	0.09	14	-48.2	Clear	None
12:25	5	20	200	13	1.32	7.01	1.59	72.4	0.09	13.9	-49.3	Clear	None
12:30	5	25	200	13	1.59	7.01	1.58	71.1	0.08	14	-49.9	Clear	None
12:35	5	30	200	13	1.85	7.02	1.57	65.5	0.08	14.1	-51.1	Clear	None
12:40	5	35	200	13	2.11	7.02	1.55	54.9	0.08	14.2	-52	Clear	None
12:45	5	40	200	13	2.38	7.02	1.52	51.2	0.08	14.1	-53.1	Clear	None
12:50	5	45	200	13	2.64	7.02	1.52	50.2	0.08	14	-53.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-12			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	73.9 degrees F and Mostly Clear. The wind is blowing E at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.28	**Total Depth (ft-bmp)**	17.2	**Water Column(ft)**	7.92	**Gallons in Well**	1.29
MP Elevation		**Pump Intake (ft-bmp)**	14.7	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**	4.10	**Sample ID**	MW-12-12_060221	**Sampled by**	Austin Westhuis
Purge Start	12:20	**Gallons Purged**	5.28	**Replicate/ Code No.**			
Purge End	12:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	500	10.36	0.66	7.23	1.86	3.08	0.28	13.2	38.3	Clear	None
12:30	5	5	500	10.89	1.32	7.57	0.87	2.65	0.13	13.9	12.3	Clear	None
12:35	5	10	500	10.94	1.98	7.58	0.61	2.12	0.09	13.8	9.3	Clear	None
12:40	5	15	500	11.03	2.64	7.56	0.57	1.94	0.09	13.5	9.8	Clear	None
12:45	5	20	500	11.05	3.30	7.54	0.57	1.85	0.09	13.4	9.9	Clear	None
12:50	5	25	500	11.06	3.96	7.54	0.56	1.68	0.09	13.3	9.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-13			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	75.9 degrees F and Mostly Cloudy. The wind is blowing SE at 9.2 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.08	**Total Depth (ft-bmp)**	25.43	**Water Column(ft)**	13.35	**Gallons in Well**	2.17
MP Elevation		**Pump Intake (ft-bmp)**	22.93	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:55	**Volumes Purged**	2.44	**Sample ID**	MW-12-13_060221	**Sampled by**	Austin Westhuis
Purge Start	14:25	**Gallons Purged**	5.28	**Replicate/ Code No.**			
Purge End	15:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	500	12.68	0.66	7.43	0.75	12.6	0.98	12.1	73.1	Clear	None
14:35	5	5	500	12.76	1.32	7.42	0.74	2.92	0.95	11.9	72.6	Clear	None
14:40	5	10	500	12.76	1.98	7.4	0.74	2.12	0.79	12.1	66.8	Clear	None
14:45	5	15	500	12.76	2.64	7.41	0.73	1.61	0.73	12	63.8	Clear	None
14:50	5	20	500	12.76	3.30	7.41	0.73	1.26	0.7	11.9	60.8	Clear	None
14:55	5	25	500	12.76	3.96	7.41	0.72	1.2	0.68	11.9	60.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-12-18			**Date**	06/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	64.9 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	22.98	**Total Depth (ft-bmp)**	34.8	**Water Column(ft)**	11.82	**Gallons in Well**	1.92
MP Elevation		**Pump Intake (ft-bmp)**	32.3	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:25	**Volumes Purged**	1.24	**Sample ID**	MW-12-18_060321	**Sampled by**	Austin Westhuis
Purge Start	09:50	**Gallons Purged**	2.38	**Replicate/ Code No.**	DUP-04		
Purge End	10:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	23.61	0.26	6.94	1.72	233	0.52	12.7	106.4	Clear	None
10:00	5	5	200	24	0.53	7.01	1.7	51.8	0.44	13	59.2	Clear	None
10:05	5	10	200	24.11	0.79	7.06	1.69	17.5	0.28	13.2	38	Clear	None
10:10	5	15	200	24.13	1.06	7.07	1.67	11.2	0.29	12.9	32.8	Clear	None
10:15	5	20	200	24.13	1.32	7.08	1.65	4.33	0.27	13.1	25.3	Clear	None
10:20	5	25	200	24.13	1.59	7.08	1.66	3.91	0.27	13.1	22.5	Clear	None
10:25	5	30	200	24.13	1.85	7.08	1.66	3.41	0.26	13	21.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	4	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-12-21			**Date**	6/7/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.57	**Total Depth (ft-bmp)**	75	**Water Column(ft)**	12.43	**Gallons in Well**	2.02
MP Elevation	NA	**Pump Intake (ft-bmp)**	71	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	11:30	**Gallons Purged**		**Replicate/ Code No.**	DUP-07	**Evacuation Method**	Bladder
Purge Start:	10:40						
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
10:50	0	200	62.7	0.00	6.73	1.46	15.3	0.47	17.9	-50.1	Clear	None
10:55	5	200	63.6	0.00	6.74	1.46	15.3	0.46	18.2	-48.8	Clear	None
11:00	5	200	64.6	0.00	6.76	1.44	12.7	0.6	17.8	-43	Clear	None
11:05	5	200	66.8	0.00	6.77	1.41	10.2	0.96	18.7	-37.6	Clear	None
11:10	5	200	66.8	0.00	6.8	1.42	8	1.15	18.9	-36.8	Clear	None
11:15	5	200	66.8	0.00	6.82	1.41	6.41	1.08	18.9	-39	Clear	None
11:20	5	200	66.8	0.00	6.84	1.42	5.31	1.04	18.9	-42.1	Clear	None
11:25	5	200	66.8	0.00	6.85	1.42	3.21	1.09	18.9	-43.4	Clear	None
11:30	5	200	66.8	0.00	6.85	1.42	2.81	1.02	18.8	-45.5	Clear	None

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-13-22			**Date**	6/7/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	64.4	**Total Depth (ft-bmp)**	94	**Water Column(ft)**	29.6	**Gallons in Well**	4.81
MP Elevation	NA	**Pump Intake (ft-bmp)**	90	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:10	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	12:30						
Purge End:	13:05						

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
12:40	0	200	64.5	0.00	6.63	1.91	0.02	1.23	21.4	-56.9	Clear	None
12:45	5	200	64.5	0.00	6.69	1.91	0.02	0.47	21.7	-71.8	Clear	None
12:50	5	200	64.5	0.00	6.7	1.91	0.02	0.4	21.8	-72.9	Clear	None
12:55	5	200	64.5	0.00	6.72	1.91	0.02	0.34	21.5	-76.1	Clear	None
13:00	5	200	64.5	0.00	6.72	1.92	0.02	0.34	21.4	-77.7	Clear	None
13:05	5	200	64.5	0.00	6.72	1.92	0.02	0.34	21.4	-77.8	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

Project Number	30075941	**Well ID**	MW-13-29			**Date**	06/08/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	75 degrees F, light rain °F, Overcast, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	41.49	**Total Depth (ft-bmp)**	76.33	**Water Column(ft)**	34.84	**Gallons in Well**	5.66
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Purge Equipment**	Bladder
Sample Time	09:45	**Volumes Purged**		**Sample ID**	MW-13-29_060821	**Sampled by**	Donald Richmond
Purge Start	09:15	**Gallons Purged**		**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	09:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	41.49	--	6.26	3.2	23.7	1.73	19.8	44.9	--	--
09:30	5	5	200	41.49	--	6.29	3.16	26.5	1.61	19.5	45.5	--	--
09:35	5	10	200	41.49	--	6.34	3.19	26.9	0.92	19.7	48.6	--	--
09:40	5	15	200	41.49	--	6.36	3.18	27.3	0.94	19.5	49.6	--	--
09:45	5	20	200	41.49	--	6.37	3.2	27.3	0.94	19.9	50.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM, Nitrate	NA	5	HCL, H2SO4, 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:	Racer Lansing	Well Locked at Arrival:	yes
Condition of Well:	Good condition	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 = milliSiemens 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	30075941	**Well ID**	MW-13-34			**Date**	06/07/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	77.0 degrees F and Mostly Cloudy. The wind is blowing SW at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	58.92	**Total Depth (ft-bmp)**	79.85	**Water Column(ft)**	20.93	**Gallons in Well**	3.4
MP Elevation		**Pump Intake (ft-bmp)**	77.35	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:25	**Volumes Purged**	1.01	**Sample ID**	MW-13-34_060721	**Sampled by**	Austin Westhuis
Purge Start	13:50	**Gallons Purged**	3.43	**Replicate/ Code No.**			
Purge End	14:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	60.19	0.26	7.13	1.61	460	1.85	14.7	-14.4	Clear	None
14:00	5	5	200	60.19	0.53	7.04	1.67	281	0.15	14.3	-48.2	Clear	None
14:05	5	10	200	60.19	0.79	7	1.73	314	0.14	14.2	-58.8	Clear	None
14:10	5	15	200	60.19	1.06	7	1.76	361	0.13	14.2	-63	Clear	None
14:15	5	20	200	60.19	1.32	7	1.77	341	0.13	14.1	-64.8	Clear	None
14:20	5	25	200	60.19	1.59	6.99	1.79	320	0.13	14	-67.6	Clear	None
14:25	5	30	200	60.19	1.85	6.99	1.81	309	0.12	14	-70.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-36R			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	72.0 degrees F and Cloudy. The wind is blowing SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.71	**Total Depth (ft-bmp)**	12.65	**Water Column(ft)**	4.94	**Gallons in Well**	0.8
MP Elevation		**Pump Intake (ft-bmp)**	10.15	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	16:35	**Volumes Purged**	2.64	**Sample ID**	MW-13-36R_060221	**Sampled by**	Austin Westhuis
Purge Start	16:05	**Gallons Purged**	2.11	**Replicate/ Code No.**	DUP-09		
Purge End	16:40						

Time	Minutes Elapsed	Total Elapsed Minutes	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
16:10	0	0	200	7.71	0.26	11.95	1.3	30	0.16	13.4	81.3	Clear	None
16:15	5	5	200	7.71	0.53	12.05	1.3	15.6	0.1	13.2	71.4	Clear	None
16:20	5	10	200	7.71	0.79	12.07	1.3	4.31	0.1	13.1	65	Clear	None
16:25	5	15	200	7.71	1.06	12.07	1.3	2.94	0.1	13.1	63.5	Clear	None
16:30	5	20	200	7.71	1.32	12.07	1.29	2.51	0.1	13.1	61.1	Clear	None
16:35	5	25	200	7.71	1.59	12.07	1.27	2.29	0.1	13.1	60.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	4	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-43			**Date**	06/03/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	75.0 degrees F and Clear. The wind is blowing W/NW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.29	**Total Depth (ft-bmp)**	78.2	**Water Column(ft)**	14.91	**Gallons in Well**	2.42
MP Elevation		**Pump Intake (ft-bmp)**	75.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:20	**Volumes Purged**	0.49	**Sample ID**	MW-13-43	**Sampled by**	Billy Cobern
Purge Start	12:35	**Gallons Purged**	1.19	**Replicate/ Code No.**			
Purge End	13:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	63.92	0.13	7.05	2.69	687	8.74	23.7	238.6	Grayish Brown	None
12:45	5	5	100	64.25	0.26	7	2.68	773	7.53	22.6	259.3	Grayish Brown	None
12:50	5	10	100	64.59	0.40	6.99	2.67	701	7.68	21.4	278.4	Grayish Brown	None
12:55	5	15	100	64.85	0.53	6.99	2.67	717	7.23	22	289	Grayish Brown	None
13:00	5	20	100	65.04	0.66	6.99	2.67	721	7.34	21.9	299.7	Grayish Brown	None
13:05	5	25	100	65.29	0.79	6.99	2.66	724	7.1	22.4	306.6	Grayish Brown	None
13:10	5	30	100	65.5	0.92	6.99	2.66	731	7.41	21.4	310.5	Grayish Brown	None
13:15	5	35	100	65.74	1.06	7	2.66	727	7.37	21.3	311.7	Grayish Brown	None
13:20	5	40	100	65.98	1.19	7	2.66	728	7.36	21.3	312.6	Grayish Brown	None

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane 8260B SIMS	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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-45			**Date**	06/03/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	71.1 degrees F and Clear.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.9	**Total Depth (ft-bmp)**	78.3	**Water Column(ft)**	15.4	**Gallons in Well**	2.5
MP Elevation		**Pump Intake (ft-bmp)**	75.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:05	**Volumes Purged**	0.42	**Sample ID**	MW-13-45_060321	**Sampled by**	Billy Cobern
Purge Start	11:25	**Gallons Purged**	1.06	**Replicate/ Code No.**			
Purge End	12:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	62.99	0.13	7.47	0.62	71.1	5.3	22.4	148.3	Clear	None
11:35	5	5	100	63.02	0.26	6.97	1.25	29.2	4.93	20.3	-39.8	Clear	None
11:40	5	10	100	63.02	0.40	6.83	1.33	16.7	1.06	17.9	-50.8	Clear	None
11:45	5	15	100	63.02	0.53	6.82	1.33	12.8	0.49	17.5	-52.3	Clear	None
11:50	5	20	100	63.02	0.66	6.82	1.33	9.9	0.36	17.5	-52.3	Clear	None
11:55	5	25	100	63.02	0.79	6.82	1.34	9.21	0.34	17.4	-52.2	Clear	None
12:00	5	30	100	63.02	0.92	6.82	1.34	8.81	0.33	17.4	-52.2	Clear	None
12:05	5	35	100	63.02	1.06	6.82	1.34	8.44	0.32	17.5	-52.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane 8260B SIMS	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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-13-46			**Date**	6/7/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	58.36	**Total Depth (ft-bmp)**	74.6	**Water Column(ft)**	16.24	**Gallons in Well**	2.64
MP Elevation	NA	**Pump Intake (ft-bmp)**	70	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:40	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	13:55						
Purge End:	14:35						

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
14:05	0	200	60.3	0.00	6.51	2.25	22.6	0.6	17.1	-19.9	Clear	None
14:10	5	200	60.3	0.00	6.52	2.26	17.4	0.36	17.2	-38.8	Clear	None
14:15	5	200	60.3	0.00	6.53	2.27	8.1	0.31	16.9	-44.4	Clear	None
14:20	5	200	60.3	0.00	6.54	2.27	10.2	0.26	16.8	-48.5	Clear	None
14:25	5	200	60.3	0.00	6.55	2.28	12.2	0.25	16.6	-49.8	Clear	None
14:30	5	200	60.3	0.00	6.56	2.28	10.3	0.23	16.6	-50.9	Clear	None
14:35	5	200	60.3	0.00	6.56	2.28	10	0.23	16.8	-52.2	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-13-48			**Date**	06/07/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	75 degrees F, sunny °F, Light Rain, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	54.22	**Total Depth (ft-bmp)**	73.1	**Water Column(ft)**	18.88	**Gallons in Well**	3.07
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:55	**Volumes Purged**		**Sample ID**	MW-13-48_060721	**Sampled by**	Donald Richmond
Purge Start	11:20	**Gallons Purged**		**Replicate/ Code No.**	MW-13-48_060721 (MS/MSD)		
Purge End	11:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	54.22	0.00	6.69	2.4	0.02	3.22	20.5	-13.4	Clear	None
11:35	5	5	200	54.22	0.00	6.7	2.35	2.25	2.3	19.9	-65.5	Clear	None
11:40	5	10	200	54.22	0.00	6.77	2.28	0.02	1.54	19.4	-97.7	Clear	None
11:45	5	15	200	54.22	0.00	6.8	2.34	0.02	1.16	20.1	-99.6	Clear	None
11:50	5	20	200	54.22	0.00	6.8	2.35	0.02	1.03	20.1	-100.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	9	HCL

Comments: MS/MSD collected here.

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-56			**Date**	06/03/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	75.9 degrees F and Clear. The wind is blowing W at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.08	**Total Depth (ft-bmp)**	79	**Water Column(ft)**	13.92	**Gallons in Well**	2.26
MP Elevation		**Pump Intake (ft-bmp)**	76.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:45	**Volumes Purged**	0.47	**Sample ID**	MW-14-56	**Sampled by**	Billy Cobern
Purge Start	14:05	**Gallons Purged**	1.06	**Replicate/ Code No.**			
Purge End	14:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
14:10	0	0	100	65.3	0.13	6.77	5.3	138	3.86	22.9	-69.6	Clear	None
14:15	5	5	100	65.5	0.26	6.71	5.25	21.9	1.24	20.2	-58.5	Clear	None
14:20	5	10	100	65.65	0.40	6.71	5.24	15.5	0.99	19.4	-56.4	Clear	None
14:25	5	15	100	65.79	0.53	6.71	5.23	13.7	0.78	19.8	-52.6	Clear	None
14:30	5	20	100	65.93	0.66	6.71	5.23	10.7	0.75	19.6	-50.7	Clear	None
14:35	5	25	100	66.08	0.79	6.71	5.24	9.87	0.73	19.6	-50.5	Clear	None
14:40	5	30	100	66.2	0.92	6.71	5.25	9.61	0.74	19.3	-50.2	Clear	None
14:45	5	35	100	66.33	1.06	6.71	5.25	9.39	0.76	19.4	-49.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-58			**Date**	06/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	13.99	**Total Depth (ft-bmp)**	30.03	**Water Column(ft)**	16.04	**Gallons in Well**	2.61
MP Elevation		**Pump Intake (ft-bmp)**	27.53	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time		**Volumes Purged**	0.71	**Sample ID**	MW-14-58_060321	**Sampled by**	Austin Westhuis
Purge Start	11:00	**Gallons Purged**	1.85	**Replicate/ Code No.**			
Purge End	11:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	13.99	0.26	6.7	4.19	2.81	0.21	15.1	-15.2	Clear	None
11:10	5	5	200	13.99	0.53	6.71	4.18	1.64	0.14	15	-32.7	Clear	None
11:15	5	10	200	13.99	0.79	6.71	4.17	1.39	0.11	14.9	-38.7	Clear	None
11:20	5	15	200	13.99	1.06	6.72	4.15	1.3	0.11	14.9	-39.4	Clear	None
11:25	5	20	200	13.99	1.32	6.73	4.13	1.21	0.1	14.9	-42.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-59			**Date**	06/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	75.9 degrees F and Clear. The wind is blowing W at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.83	**Total Depth (ft-bmp)**	18.88	**Water Column(ft)**	13.05	**Gallons in Well**	2.12
MP Elevation		**Pump Intake (ft-bmp)**	16.38	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:40	**Volumes Purged**	0.75	**Sample ID**	MW-14-59_060321	**Sampled by**	Austin Westhuis
Purge Start	13:20	**Gallons Purged**	1.59	**Replicate/ Code No.**			
Purge End	13:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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
13:25	0	0	200	5.83	0.26	7.31	0.67	6.7	0.11	14.6	-11.6	Clear	None
13:30	5	5	200	5.83	0.53	7.32	0.68	2.91	0.1	14.6	-22.5	Clear	None
13:35	5	10	200	5.83	0.79	7.32	0.68	2.41	0.1	14.6	-26.5	Clear	None
13:40	5	15	200	5.83	1.06	7.32	0.68	2.12	0.1	14.6	-28.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-60			**Date**	06/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	75.9 degrees F and Clear. The wind is blowing W at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.45	**Total Depth (ft-bmp)**	23.6	**Water Column(ft)**	13.15	**Gallons in Well**	2.14
MP Elevation		**Pump Intake (ft-bmp)**	21.1	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:25	**Volumes Purged**	0.74	**Sample ID**	MW-14-60_060321	**Sampled by**	Austin Westhuis
Purge Start	14:00	**Gallons Purged**	1.59	**Replicate/ Code No.**			
Purge End	14:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	10.45	0.26	7.35	0.79	2.62	0.13	14.9	-50.3	Clear	None
14:10	5	5	200	10.45	0.53	7.36	0.79	2.18	0.11	14.9	-59.3	Clear	None
14:15	5	10	200	10.45	0.79	7.36	0.8	1.71	0.1	15.1	-72.1	Clear	None
14:20	5	15	200	10.45	1.06	7.36	0.8	1.5	0.1	15.1	-76	Clear	None
14:25	5	20	200	10.45	1.32	7.36	0.8	1.33	0.1	15	-76.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-61			**Date**	06/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	63.37	**Total Depth (ft-bmp)**	77.44	**Water Column(ft)**	14.07	**Gallons in Well**	2.29
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	22:30	**Volumes Purged**		**Sample ID**	MW-14-61_060221	**Sampled by**	Donald Richmond
Purge Start	09:40	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	11:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	63.37	0.00	6.71	1.49	11.9	1.69	20.4	137.6	Clear	None
10:10	5	5	200	63.37	0.00	6.86	1.54	8.4	1.49	21.7	123.5	Clear	None
10:15	5	10	200	63.26	0.00	6.99	1.59	8.1	1.51	21.8	110.6	Clear	None
10:20	5	15	200	63.26	0.00	6.92	1.67	7.02	1.35	20.8	111	Clear	None
10:25	5	20	200	63.26	0.00	6.84	1.77	4.58	1.4	20.6	113.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522,Nitrate/Nitrite, TKN, Total Pho	See COC	7	Various

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-62			**Date**	06/03/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	78.1 degrees F and Clear. The wind is blowing at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	4.54	**Total Depth (ft-bmp)**	19.6	**Water Column(ft)**	15.06	**Gallons in Well**	2.45
MP Elevation		**Pump Intake (ft-bmp)**	17.1	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:00	**Volumes Purged**	0.75	**Sample ID**	MW-14-62_060321	**Sampled by**	Austin Westhuis
Purge Start	14:35	**Gallons Purged**	1.85	**Replicate/ Code No.**			
Purge End	15:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	4.54	0.26	11.23	0.409	2.34	0.14	16.6	-220.9	Clear	None
14:45	5	5	200	4.54	0.53	11.23	0.412	1.64	0.1	16.5	-262.4	Clear	None
14:50	5	10	200	4.54	0.79	11.28	0.43	1.6	0.1	16.5	-289.7	Clear	None
14:55	5	15	200	4.54	1.06	11.29	0.435	1.41	0.1	16.5	-292.2	Clear	None
15:00	5	20	200	4.54	1.32	11.31	0.437	1.3	0.1	16.4	-297.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-67			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	72.0 degrees F and Cloudy. The wind is blowing SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.77	**Total Depth (ft-bmp)**	20.84	**Water Column(ft)**	14.07	**Gallons in Well**	2.29
MP Elevation		**Pump Intake (ft-bmp)**	18.34	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:45	**Volumes Purged**	0.81	**Sample ID**	MW-14-67_060221	**Sampled by**	Austin Westhuis
Purge Start	15:20	**Gallons Purged**	1.85	**Replicate/ Code No.**			
Purge End	15:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
15:25	0	0	200	7.11	0.26	7.41	1.21	12.9	0.22	13.9	70.4	Clear	None
15:30	5	5	200	7.11	0.53	7.39	1.2	3.84	0.11	13.8	68.2	Clear	None
15:35	5	10	200	7.11	0.79	7.38	1.22	2.46	0.09	13.9	67.2	Clear	None
15:40	5	15	200	7.11	1.06	7.37	1.22	2.06	0.09	13.9	66.1	Clear	None
15:45	5	20	200	7.11	1.32	7.37	1.22	1.71	0.09	13.8	66.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-14-70			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	73.9 degrees F and Mostly Clear. The wind is blowing E at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.4	**Total Depth (ft-bmp)**	23.09	**Water Column(ft)**	10.69	**Gallons in Well**	1.74
MP Elevation		**Pump Intake (ft-bmp)**	20.59	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:35	**Volumes Purged**	2.66	**Sample ID**	MW-14-70_060221	**Sampled by**	Austin Westhuis
Purge Start	13:10	**Gallons Purged**	4.62	**Replicate/ Code No.**			
Purge End	13:40						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	500	12.79	0.66	7.3	1.04	16.9	0.18	12.1	43	Clear	None
13:20	5	5	500	12.8	1.32	7.31	1.04	6.72	0.16	12.2	39.1	Clear	None
13:25	5	10	500	12.8	1.98	7.31	1.03	2.14	0.15	11.9	36.1	Clear	None
13:30	5	15	500	12.8	2.64	7.31	1.04	1.91	0.14	12	33	Clear	None
13:35	5	20	500	12.8	3.30	7.31	1.05	1.47	0.14	12	31.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-15-72			**Date**	06/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	55.93	**Total Depth (ft-bmp)**	70.29	**Water Column(ft)**	14.36	**Gallons in Well**	2.33
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	02:50	**Volumes Purged**		**Sample ID**	MW-15-72_060221	**Sampled by**	Donald Richmond
Purge Start	02:20	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	14:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	55.93	0.00	7.05	0.97	20.4	7.37	19.8	34.7	Clear	None
14:35	5	5	200	55.93	0.00	6.97	0.97	5.99	6.74	19.4	-30.4	Clear	None
14:40	5	10	200	55.93	0.00	6.94	0.97	3.01	5.9	19.5	-67.9	Clear	None
14:45	5	15	200	55.93	0.00	6.96	0.98	2.96	5.43	19.6	-74.5	Clear	None
14:50	5	20	200	55.93	0.00	6.96	0.97	1.8	4.94	19.6	-77.4	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522, PFAS	40 mL Glass, 250 mL HDPE Plastic	3, 2	HCL, 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-74			**Date**	06/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.37	**Total Depth (ft-bmp)**	73.68	**Water Column(ft)**	12.31	**Gallons in Well**	2
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	01:40	**Volumes Purged**		**Sample ID**	MW-16-74_060221	**Sampled by**	Donald Richmond
Purge Start	12:45	**Gallons Purged**		**Replicate/ Code No.**	MW-16-74_060221 (MS/MSD)		
Purge End	13:40						

Time	Minutes Elapsed	Total Elapsed Minutes	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
13:00	0	0	200	61.37	0.00	6.91	1.4	45.2	1.04	24	-5.8	Clear	None
13:05	5	5	200	61.37	0.00	6.91	1.94	261	0.88	23.7	-17.9	Clear	None
13:10	5	10	200	62.87	0.00	6.93	1.99	310	0.67	24.9	-33.5	Clear	None
13:15	5	15	200	62.87	0.00	6.94	2.09	295	0.53	25.4	-48.3	Clear	None
13:20	5	20	200	62.87	0.00	6.99	2.17	201	0.43	26.2	-61.4	Clear	None
13:25	5	25	200	62.87	0.00	7	2.18	156	0.41	25.7	-67.2	Clear	None
13:33	8	33	200	62.87	0.00	6.94	2.17	160	0.39	25.8	-64.6	Clear	None
13:40	7	40	200	62.87	0.00	6.94	2.18	162	0.37	26.2	-66.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	40 mL Glass	9	HCL

Comments: MS/MSD collected here.

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-75			**Date**	06/03/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	68.0 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.69	**Total Depth (ft-bmp)**	74.05	**Water Column(ft)**	14.36	**Gallons in Well**	2.33
MP Elevation		**Pump Intake (ft-bmp)**	71.5	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:05	**Volumes Purged**	0.40	**Sample ID**	MW-16-75_060321	**Sampled by**	Billy Cobern
Purge Start	10:30	**Gallons Purged**	0.92	**Replicate/ Code No.**			
Purge End	11:10						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	59.85	0.13	7.09	1.95	133	3.4	18.7	-67.3	Clear	None
10:40	5	5	100	60.12	0.26	7.02	1.98	19.9	0.88	17.1	-76.4	Clear	None
10:45	5	10	100	60.35	0.40	7.02	1.97	13.9	0.46	16.5	-78.1	Clear	None
10:50	5	15	100	60.49	0.53	7.03	1.98	10.9	0.37	16.4	-78.3	Clear	None
10:55	5	20	100	60.63	0.66	7.03	1.98	9.89	0.36	16.1	-78.3	Clear	None
11:00	5	25	100	60.78	0.79	7.03	1.98	9.34	0.34	16.1	-78.4	Clear	None
11:05	5	30	100	60.93	0.92	7.03	1.98	9.52	0.34	16.2	-78.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane 8260B SIMS	40 mL Glass	3	HCL

Comments: Didn't meet drawdown requirements

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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-77			**Date**	06/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	71.1 degrees F and Mostly Cloudy. The wind is blowing SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.42	**Total Depth (ft-bmp)**	74.7	**Water Column(ft)**	17.28	**Gallons in Well**	2.81
MP Elevation		**Pump Intake (ft-bmp)**	72.2	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:40	**Volumes Purged**	0.56	**Sample ID**	MW-16-77_060421	**Sampled by**	Austin Westhuis
Purge Start	09:15	**Gallons Purged**	1.59	**Replicate/ Code No.**			
Purge End	09:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:20	0	0	200	61.02	0.26	6.96	2.13	40.6	0.75	12.9	-21.9	Clear	None
09:25	5	5	200	61.42	0.53	7.02	2.01	11.7	0.5	12.6	-44.9	Clear	None
09:30	5	10	200	61.57	0.79	7.05	1.97	4.12	0.5	12.7	-54.9	Clear	None
09:35	5	15	200	61.61	1.06	7.05	1.97	3.81	0.48	12.7	-56.1	Clear	None
09:40	5	20	200	61.63	1.32	7.06	1.96	3.42	0.46	12.6	-56.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-78			**Date**	06/02/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.82	**Total Depth (ft-bmp)**	76.15	**Water Column(ft)**	14.33	**Gallons in Well**	2.33
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	00:00	**Volumes Purged**		**Sample ID**	MW-16-78_060221	**Sampled by**	Donald Richmond
Purge Start	11:30	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	12:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	61.82	0.00	6.94	1.82	8.14	2.03	26.5	23.3	Clear	None
11:45	5	5	200	61.62	0.00	6.84	1.79	7.86	1.36	26.3	-11	Clear	None
11:50	5	10	200	61.62	0.00	6.87	1.79	3.44	0.73	26.6	-73.4	Clear	None
11:55	5	15	200	61.62	0.00	6.87	1.79	2.44	0.72	26.4	-76.1	Clear	None
12:00	5	20	200	61.62	0.00	6.84	1.79	1.53	0.67	26.8	-79	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-79			**Date**	06/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.98	**Total Depth (ft-bmp)**	75.81	**Water Column(ft)**	13.83	**Gallons in Well**	2.25
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:15	**Volumes Purged**		**Sample ID**	MW-16-79_060321	**Sampled by**	Donald Richmond
Purge Start	12:15	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	13:15						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	62.95	0.00	7.35	0.87	28	1.94	19.9	-33.7	Clear	None
12:30	5	5	200	62.95	0.00	7.04	0.81	34.8	1.08	20	-40.7	Clear	None
12:35	5	10	200	62.95	0.00	7.1	0.84	31.8	1.04	22.4	-58.7	Clear	None
12:40	5	15	200	62.95	0.00	7.23	0.88	28.7	1.08	24.1	-74.9	Clear	None
12:45	5	20	200	62.95	0.00	7.35	0.97	41.1	1.07	28.3	-97.5	Clear	None
12:50	5	25	200	62.95	0.00	7.32	1.01	36	1.3	29.8	-101.2	Clear	None
12:55	5	30	200	62.95	0.00	7.3	1.04	17.3	1.44	30.9	-102.4	Clear	None
13:00	5	35	200	62.95	0.00	7.29	0.56	23.6	1.22	31.2	-95	Clear	None
13:05	5	40	200	62.95	0.00	7.32	0.98	21.2	2.23	25.5	-104.3	Clear	None
13:10	5	45	200	62.95	0.00	7.01	0.94	24.1	1.82	22.8	-84.4	Clear	None
13:15	5	50	200	62.95	0.00	6.91	0.99	20.1	0.75	23.8	-80.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-80			**Date**	06/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	81.0 degrees F and Mostly Clear. The wind is blowing W/SW at 15.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.02	**Total Depth (ft-bmp)**	74.3	**Water Column(ft)**	17.28	**Gallons in Well**	2.81
MP Elevation		**Pump Intake (ft-bmp)**	71.8	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**	0.66	**Sample ID**	MW-16-80_060421	**Sampled by**	Austin Westhuis
Purge Start	12:20	**Gallons Purged**	1.85	**Replicate/ Code No.**			
Purge End	12:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	57.02	0.26	6.77	2.24	114	8.67	13	-46.7	Clear	None
12:30	5	5	200	57.02	0.53	6.77	2.24	73	8	13.5	-49.8	Clear	None
12:35	5	10	200	57.02	0.79	6.79	2.21	17.8	7.26	12.5	-58.7	Clear	None
12:40	5	15	200	57.02	1.06	6.8	2.21	2.33	6.51	12.5	-65.1	Clear	None
12:45	5	20	200	57.02	1.32	6.8	2.2	2.01	6.21	12.4	-67	Clear	None
12:50	5	25	200	57.02	1.59	6.8	2.21	1.81	6.18	12.4	-68.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-81			**Date**	06/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.95	**Total Depth (ft-bmp)**	77.24	**Water Column(ft)**	14.29	**Gallons in Well**	2.32
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:25	**Volumes Purged**		**Sample ID**	MW-16-81_060321	**Sampled by**	Donald Richmond
Purge Start	10:50	**Gallons Purged**		**Replicate/ Code No.**	DUP-02		
Purge End	11:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	65.4	0.00	6.57	2.41	1.7	1.61	19.7	17.7	Clear	None
11:05	5	5	200	65.4	0.00	6.58	2.41	0.02	1.43	18.9	7.2	Clear	None
11:10	5	10	200	65.4	0.00	6.62	2.62	0.02	0.7	18.9	-7.6	Clear	None
11:15	5	15	200	65.4	0.00	6.67	3.05	0.02	0.63	19.2	-18.7	Clear	None
11:20	5	20	200	65.4	0.00	6.69	3.1	0.02	0.58	19	-21.1	Clear	None
11:25	5	25	200	65.4	0.00	6.71	3.15	0.02	0.52	19.1	-23.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane	40 mL Glass	6	HCL
PFAS	250 mL HDPE Plastic	4	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-82			**Date**	06/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.48	**Total Depth (ft-bmp)**	77.15	**Water Column(ft)**	14.67	**Gallons in Well**	2.38
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:45	**Volumes Purged**		**Sample ID**	MW-16-82_060421	**Sampled by**	Donald Richmond
Purge Start	08:50	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	09:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	62.48	0.00	6.85	1.03	4.1	1.15	19.1	-53.9	Clear	None
09:15	5	5	200	64.15	0.00	6.9	1.03	0.02	0.97	18.8	-65.5	Clear	None
09:20	5	10	200	64.15	0.00	6.91	1.02	0.02	1.02	18.8	-72.6	Clear	None
09:25	5	15	200	64.15	0.00	6.96	1.03	0.02	0.67	18.7	-85.2	Clear	None
09:30	5	20	200	64.15	0.00	7.08	1.02	0.02	0.39	18.3	-101.1	Clear	None
09:35	5	25	200	64.15	0.00	7.14	1.1	0.02	0.4	21.3	-110.8	Clear	None
09:40	5	30	200	64.15	0.00	7.17	1.11	0.02	0.31	21.6	-113.9	Clear	None
09:45	5	35	200	64.15	0.00	7.18	1.14	0.02	0.34	21.8	-114.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-84			**Date**	06/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.4	**Total Depth (ft-bmp)**	81.13	**Water Column(ft)**	15.73	**Gallons in Well**	2.56
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:50	**Volumes Purged**		**Sample ID**	MW-16-84_060321	**Sampled by**	Donald Richmond
Purge Start	08:50	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	09:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	65.4	0.00	7.25	1.05	2.1	1.99	19.4	106	Clear	None
09:10	5	5	200	65.4	0.00	7.23	1.06	0.6	1.18	19.7	101.6	Clear	None
09:15	5	10	200	65.4	0.00	7.22	1.07	0.45	1.01	20	98.7	Clear	None
09:20	5	15	200	65.4	0.00	7.22	1.08	0.7	0.79	20	73.6	Clear	None
09:25	5	20	200	65.4	0.00	7.18	1.07	1.15	0.77	19.9	37.3	Clear	None
09:30	5	25	200	65.4	0.00	7.15	1.08	1.12	0.61	20.2	-3.5	Clear	None
09:35	5	30	200	65.4	0.00	7.16	1.08	0.98	0.57	20.4	-26.2	Clear	None
09:40	5	35	200	65.4	0.00	7.17	1.09	1.55	0.58	20.6	-42.3	Clear	None
09:45	5	40	200	65.4	0.00	7.17	1.09	0.76	0.51	21.2	-47.9	Clear	None
09:50	5	45	200	65.4	0.00	7.2	1.1	5.77	0.51	21.1	-57.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522, Nitrate/Nitrite, TKN, Total Pho	40 mL Glass, See COC	3, 5	HCL, Various

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-16-85			**Date**	06/04/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	75.9 degrees F and Partly Cloudy. The wind is blowing W/SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	65.16	**Total Depth (ft-bmp)**	83.2	**Water Column(ft)**	18.04	**Gallons in Well**	2.93
MP Elevation		**Pump Intake (ft-bmp)**	81.7	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:00	**Volumes Purged**	0.81	**Sample ID**	MW-16-85_060421	**Sampled by**	Austin Westhuis
Purge Start	10:20	**Gallons Purged**	2.38	**Replicate/ Code No.**			
Purge End	11:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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
10:25	0	0	200	66.54	0.26	7.28	0.87	237	1.95	18.1	-61.1	Clear	None
10:30	5	5	200	66.71	0.53	7.31	0.75	129	0.46	16.1	-79.4	Clear	None
10:35	5	10	200	66.91	0.79	7.31	0.72	40.9	0.36	16.3	-84.2	Clear	None
10:40	5	15	200	67.13	1.06	7.3	0.71	21.2	0.33	16	-85.1	Clear	None
10:45	5	20	200	67.18	1.32	7.29	0.71	12.6	0.31	15.9	-88.7	Clear	None
10:50	5	25	200	67.19	1.59	7.29	0.71	3.01	0.29	15.9	-89.7	Clear	None
10:55	5	30	200	67.21	1.85	7.28	0.7	2.49	0.27	15.8	-90.3	Clear	None
11:00	5	35	200	67.21	2.11	7.27	0.69	2.41	0.27	15.9	-90.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-17-86			**Date**	06/03/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	66 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.7	**Total Depth (ft-bmp)**	81.41	**Water Column(ft)**	18.71	**Gallons in Well**	3.04
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:25	**Volumes Purged**		**Sample ID**	MW-17-86_060321	**Sampled by**	Donald Richmond
Purge Start	13:50	**Gallons Purged**		**Replicate/ Code No.**	MW-17-86_060321 (DUP-01)		
Purge End	14:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	62.7	0.00	7.19	1.53	0.55	1.51	23.1	43.6	Clear	None
14:05	5	5	200	62.7	0.00	7.17	1.55	0.02	1.28	23	41	Clear	None
14:10	5	10	200	62.7	0.00	7	1.62	0.02	0.44	21.8	-53.9	Clear	None
14:15	5	15	200	62.7	0.00	6.98	1.66	0.02	0.34	22.2	-81.9	Clear	None
14:20	5	20	200	62.7	0.00	6.97	1.68	0.02	0.33	21.9	-85.9	Clear	None
14:25	5	25	200	62.7	0.00	6.97	1.72	0.02	0.28	22.2	-89.8	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	40 mL Glass	6	HCL

Comments: DUP-01 collected here.

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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-88			**Date**	6/9/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Cloudy, hot
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	6.2	**Total Depth (ft-bmp)**	15	**Water Column(ft)**	8.8	**Gallons in Well**	1.43
MP Elevation	NA	**Pump Intake (ft-bmp)**	14	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	12:15	**Gallons Purged**		**Replicate/ Code No.**		**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
11:45	0	200	6.4	0.00	6.88	0.64	45.8	1.13	17.8	121.8	Clear	None
11:50	5	200	6.4	0.00	6.88	0.64	24.4	0.31	18	118.7	Clear	None
11:55	5	200	6.4	0.00	6.89	0.64	5.25	0.15	17.5	115.8	Clear	None
12:00	5	200	6.4	0.00	6.88	0.64	3.21	0.12	17.6	114.3	Clear	None
12:05	5	200	6.4	0.00	6.88	0.64	1.23	0.1	17.9	112.4	Clear	None
12:10	5	200	6.4	0.00	6.89	0.64	0.02	0.1	17.9	111.4	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-89			**Date**	06/08/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	82.9 degrees F and Mostly Clear. The wind is blowing at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.98	**Total Depth (ft-bmp)**	15.6	**Water Column(ft)**	5.62	**Gallons in Well**	0.91
MP Elevation		**Pump Intake (ft-bmp)**	13.1	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:50	**Volumes Purged**	1.45	**Sample ID**	MW-18-89_060821	**Sampled by**	Austin Westhuis
Purge Start	15:00	**Gallons Purged**	1.32	**Replicate/ Code No.**			
Purge End	15:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	11.01	0.26	8.2	0.66	3.34	0.2	15.3	-11.3	Clear	None
15:10	5	5	200	11.98	0.53	8.03	0.66	2.21	0.2	15.4	-59	Clear	None
15:15	5	10	200	12.76	0.79	7.98	0.65	2.01	0.13	15.7	-75.3	Clear	None

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

Comments: Unable to stabilize the water level while purging. Purge the well dry at 1520 and 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-90			**Date**	06/08/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	80.1 degrees F and Cloudy. The wind is blowing N/NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	11.36	**Total Depth (ft-bmp)**	23.15	**Water Column(ft)**	11.79	**Gallons in Well**	1.92
MP Elevation		**Pump Intake (ft-bmp)**	21.65	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:25	**Volumes Purged**	1.10	**Sample ID**	MW-18-90_060821	**Sampled by**	Austin Westhuis
Purge Start	13:55	**Gallons Purged**	2.11	**Replicate/ Code No.**			
Purge End	14:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	11.42	0.26	11.99	1.67	17	0.11	14.1	-175.2	Clear	None
14:05	5	5	200	11.42	0.53	11.99	1.68	10.1	0.1	13.8	-202.9	Clear	None
14:10	5	10	200	11.42	0.79	12.05	1.73	4.09	0.1	14	-232.8	Clear	None
14:15	5	15	200	11.42	1.06	12.1	1.75	3.41	0.1	13.9	-247.2	Clear	None
14:20	5	20	200	11.42	1.32	12.1	1.77	3.04	0.1	14	-253.9	Clear	None
14:25	5	25	200	11.42	1.59	12.11	1.78	2.71	0.1	14	-255.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-91			**Date**	06/09/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	83 degrees F/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.82	**Total Depth (ft-bmp)**	15	**Water Column(ft)**	7.18	**Gallons in Well**	1.17
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**		**Sample ID**	MW-18-91_060921	**Sampled by**	Donald Richmond
Purge Start	12:15	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	12:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	7.82	0.00	7.61	0.69	7.63	4.75	25.1	-80.8	Clear	None
12:25	5	5	200	8.56	0.00	7.83	0.7	9.88	1.12	19.7	-180	Clear	None
12:30	5	10	200	8.56	0.00	7.53	0.69	2.96	0.45	19.2	-182.9	Clear	None
12:35	5	15	200	8.56	0.00	7.61	0.67	2.26	0.22	19.7	-185	Clear	None
12:40	5	20	200	8.56	0.00	7.62	0.67	2.49	0.17	19.9	-181.6	Clear	None
12:45	5	25	200	8.56	0.00	7.63	0.65	1.94	0.2	19.3	-175.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-92			**Date**	06/09/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	83 degrees F/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	17.15	**Total Depth (ft-bmp)**	30.11	**Water Column(ft)**	12.96	**Gallons in Well**	2.11
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:25	**Volumes Purged**		**Sample ID**	MW-18-92_060921	**Sampled by**	Donald Richmond
Purge Start	21:45	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	10:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	17.15	0.00	6.73	1.16	1.43	1.92	16.2	54.8	Clear	None
10:00	5	5	200	17.15	0.00	6.77	1.16	0.02	1.28	16.4	48.4	Clear	None
10:05	5	10	200	17.15	0.00	6.84	1.14	0.02	0.93	15.2	43.9	Clear	None
10:10	5	15	200	17.15	0.00	6.85	1.14	0.02	0.84	15.4	41.7	Clear	None
10:15	5	20	200	17.15	0.00	6.87	1.14	0.02	0.66	15.7	38.5	Clear	None
10:20	5	25	200	17.15	0.00	6.9	1.11	0.02	0.62	14.5	37.4	Clear	None
10:25	5	30	200	17.15	0.00	6.91	1.12	0.02	0.6	14.7	35.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-93			**Date**	06/07/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	75 degrees F, light rain °F, Overcast, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	47.65	**Total Depth (ft-bmp)**	85.01	**Water Column(ft)**	37.36	**Gallons in Well**	6.07
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	02:55	**Volumes Purged**		**Sample ID**	MW-18-93_060721	**Sampled by**	Donald Richmond
Purge Start	14:10	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	14:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	47.65	0.00	7.36	0.57	6.68	1.01	19	158.6	Clear	None
14:25	5	5	200	47.65	0.00	7.42	0.58	25.1	1.18	20.4	-145.4	Clear	None
14:40	15	20	200	51.8	0.00	7.56	7.7	3.23	0.44	18.5	-185.8	Clear	None
14:45	5	25	200	51.8	0.00	7.29	0.57	2.23	0.34	17.8	-191.9	Clear	None
14:50	5	30	200	51.8	0.00	7.3	0.56	0.02	0.31	17.9	-195.6	Clear	None
14:55	5	35	200	51.8	0.00	7.36	0.58	0.02	0.32	19.1	-201	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-94			**Date**	06/07/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	75 degrees F, light rain °F, Overcast, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	52.83	**Total Depth (ft-bmp)**	79.66	**Water Column(ft)**	26.83	**Gallons in Well**	4.36
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	01:20	**Volumes Purged**		**Sample ID**	MW-18-94_060721	**Sampled by**	Donald Richmond
Purge Start	12:40	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	13:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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
12:45	0	0	200	52.83	0.00	9.49	1.46	0.02	1.03	17.9	-74.9	Clear	None
12:50	5	5	200	52.83	0.00	9.4	1.48	0.02	0.86	18	-88.9	Clear	None
12:55	5	10	200	52.83	0.00	9.41	1.46	0.02	0.32	17.8	-117.7	Clear	None
13:00	5	15	200	52.83	0.00	9.28	1.46	0.02	0.23	18.2	-164.6	Clear	None
13:05	5	20	200	52.83	0.00	7.99	1.77	0.02	0.17	18.4	-309.5	Clear	None
13:10	5	25	200	52.83	0.00	7.45	2.37	0.02	0.18	19.8	-331.9	Clear	None
13:15	5	30	200	52.83	0.00	7.29	2.77	0.02	0.15	19.3	-332.1	Clear	None
13:20	5	35	200	52.83	0.00	7.27	2.82	0.02	0.15	18.7	-331.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-95			**Date**	6/8/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Hot, cloudy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	7.5	**Total Depth (ft-bmp)**	12.5	**Water Column(ft)**	5	**Gallons in Well**	0.81
MP Elevation	NA	**Pump Intake (ft-bmp)**	12	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	15:40	**Gallons Purged**		**Replicate/ Code No.**	DUP-06	**Evacuation Method**	Peristaltic
Purge Start:	14:50						
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
15:00	0	200	7.8	0.00	7.05	0.56	53	0.24	19	119	Clear	None
15:05	5	200	7.8	0.00	7.07	0.55	34.8	0.31	19.1	116.1	Clear	None
15:10	5	200	7.8	0.00	7.07	0.56	31.1	0.26	19.3	107.7	Clear	None
15:15	5	200	7.8	0.00	7.07	0.56	13.6	0.24	19.5	78.9	Clear	None
15:20	5	200	7.8	0.00	7.08	0.56	10.2	0.26	19.3	62.6	Clear	None
15:25	5	200	7.8	0.00	7.08	0.56	7.26	0.27	19.4	51.5	Clear	None
15:30	5	200	7.8	0.00	7.08	0.56	5.51	0.28	19.6	46.6	Clear	None
15:35	5	200	7.8	0.00	7.08	0.56	3.21	0.27	19.8	45.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	4	None

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-97			**Date**	06/08/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	79 degrees F/ overcast °F, Overcast, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.76	**Total Depth (ft-bmp)**	92.7	**Water Column(ft)**	31.94	**Gallons in Well**	5.19
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:50	**Volumes Purged**		**Sample ID**	MW-18-97_060821	**Sampled by**	Donald Richmond
Purge Start	11:55	**Gallons Purged**		**Replicate/ Code No.**	DUP-08		
Purge End	12:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	60.76	0.00	7.17	1.3	0.02	2.98	24.9	62.3	Clear	None
12:15	5	5	200	60.76	0.00	6.99	1.42	0.02	1.64	23.8	-35.7	Clear	None
12:20	5	10	200	60.76	0.00	6.99	1.46	0.02	1.25	23.9	-57.9	Clear	None
12:25	5	15	200	60.76	0.00	7.01	1.51	0.02	1.09	23.9	-74.2	Clear	None
12:30	5	20	200	60.76	0.00	7.05	1.6	0.02	0.89	25.1	-111.6	Clear	None
12:35	5	25	200	60.76	0.00	7.11	1.67	0.02	0.74	26.4	-131.6	Clear	None
12:40	5	30	200	60.76	0.00	7.13	1.7	0.02	0.66	27.2	-140.9	Clear	None
12:45	5	35	200	60.76	0.00	7.16	1.8	0.02	0.58	29.8	-149.9	Clear	None
12:50	5	40	200	60.76	0.00	7.1	1.75	0.02	0.55	27.2	-149.9	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	4	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-98			**Date**	06/08/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	75.0 degrees F and Cloudy. The wind is blowing W/SW at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.71	**Total Depth (ft-bmp)**	14.9	**Water Column(ft)**	8.19	**Gallons in Well**	1.33
MP Elevation		**Pump Intake (ft-bmp)**	12.4	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:20	**Volumes Purged**	1.59	**Sample ID**	MW-18-98_060821	**Sampled by**	Austin Westhuis
Purge Start	10:55	**Gallons Purged**	2.11	**Replicate/ Code No.**	NA		
Purge End	11:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	7.96	0.26	7.02	1.27	12.9	0.16	16	-26.3	Clear	None
11:05	5	5	200	8.12	0.53	7.06	1.27	3.69	0.12	16	-38.9	Clear	None
11:10	5	10	200	8.2	0.79	7.09	1.23	1.64	0.12	15.9	-52.2	Clear	None
11:15	5	15	200	8.22	1.06	7.11	1.21	1.44	0.12	15.8	-53.6	Clear	None
11:20	5	20	200	8.23	1.32	7.1	1.2	1.24	0.12	15.7	-54.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-99			**Date**	06/08/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	78.1 degrees F and Cloudy. The wind is blowing N/NW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	6.26	**Total Depth (ft-bmp)**	16.85	**Water Column(ft)**	10.59	**Gallons in Well**	1.72
MP Elevation		**Pump Intake (ft-bmp)**	14.35	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:25	**Volumes Purged**	1.23	**Sample ID**	MW-18-99_060821	**Sampled by**	Austin Westhuis
Purge Start	12:55	**Gallons Purged**	2.11	**Replicate/ Code No.**			
Purge End	13:30						

Time	Minutes Elapsed	Total Elapsed Minutes	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
13:00	0	0	200	7.68	0.26	7.74	2.28	3.44	0.1	16.1	-78.9	Clear	None
13:05	5	5	200	7.78	0.53	7.74	2.27	2.69	0.09	16.1	-98.7	Clear	None
13:10	5	10	200	7.83	0.79	7.74	2.24	2.11	0.09	15.7	-124.6	Clear	None
13:15	5	15	200	7.83	1.06	7.8	2.18	1.7	0.09	15.6	-146.7	Clear	None
13:20	5	20	200	7.85	1.32	7.85	2.16	1.42	0.09	15.5	-153.7	Clear	None
13:25	5	25	200	7.85	1.59	7.87	2.13	1.09	0.09	15.3	-156.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-100			**Date**	6/8/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Hot, cloudy
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	11.58	**Total Depth (ft-bmp)**	15.25	**Water Column(ft)**	3.67	**Gallons in Well**	0.6
MP Elevation	NA	**Pump Intake (ft-bmp)**	14	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:15	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	13:40						
Purge End:	14:10						

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
13:50	0	200	12.4	0.00	7.51	0.87	38.8	2.25	18.6	117	Clear	None
13:55	5	200	12.4	0.00	7.44	0.87	27.1	2.28	19	114.9	Clear	None
14:00	5	200	12.4	0.00	7.39	0.88	22	2.22	19.2	114.4	Clear	None
14:05	5	200	12.4	0.00	7.4	0.89	20.9	2.1	19.1	112.7	Clear	None
14:10	5	200	12.4	0.00	7.4	0.89	18.8	2.1	19.2	110	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-18-101			**Date**	06/07/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	75 degrees F, sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.61	**Total Depth (ft-bmp)**	87.45	**Water Column(ft)**	26.84	**Gallons in Well**	4.36
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:15	**Volumes Purged**		**Sample ID**	MW-18-101_060721	**Sampled by**	Donald Richmond
Purge Start	09:20	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	10:15						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	60.61	0.00	6.71	1.4	0.02	0.75	23.7	-268	Clear	None
09:50	15	15	200	60.61	0.00	6.78	1.4	0.02	0.69	22.4	-302.8	Clear	None
09:55	5	20	200	60.61	0.00	6.72	1.37	0.02	0.46	21.7	-303.7	Clear	None
10:00	5	25	200	60.61	0.00	6.73	1.35	0.02	0.39	21.7	-305.4	Clear	None
10:05	5	30	200	60.61	0.00	6.77	1.36	0.02	0.35	21.6	-310.1	Clear	None
10:10	5	35	200	60.61	0.00	6.79	1.29	0.02	0.32	19.3	-313	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-102			**Date**	6/8/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	11.11	**Total Depth (ft-bmp)**	14.7	**Water Column(ft)**	3.59	**Gallons in Well**	0.58
MP Elevation	NA	**Pump Intake (ft-bmp)**	14	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	11:05	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	10:15						
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
10:20	0	200	11.3	0.00	7.02	0.67	28.7	0.7	14.9	110.5	Clear	None
10:25	5	200	11.3	0.00	7.01	0.67	18.9	0.57	15.2	88.5	Clear	None
10:30	5	200	11.3	0.00	7.02	0.67	17.3	0.53	16	63.7	Clear	None
10:35	5	200	11.3	0.00	7.05	0.67	12.4	0.47	15.7	49.8	Clear	None
10:40	5	200	11.3	0.00	7.05	0.67	10.3	0.42	15.7	36.1	Clear	None
10:45	5	200	11.3	0.00	7.05	0.67	10.4	0.37	15.3	27.3	Clear	None
10:50	5	200	11.3	0.00	7.04	0.67	7.11	0.32	16	17.5	Clear	None
10:55	5	200	11.3	0.00	7.05	0.67	6.98	0.34	15.6	14.7	Clear	None
11:00	5	200	11.3	0.00	7.07	0.67	6.45	0.32	15.3	12.9	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-103			**Date**	6/9/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	4.42	**Total Depth (ft-bmp)**	10.7	**Water Column(ft)**	6.28	**Gallons in Well**	1.02
MP Elevation	NA	**Pump Intake (ft-bmp)**	10	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:35	**Gallons Purged**		**Replicate/ Code No.**	MS/MSD	**Evacuation Method**	Peristaltic
Purge Start:	09:45						
Purge End:	10:30						

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
09:55	0	200	5.1	0.00	6.84	0.73	149	1.4	15.3	153.8	Clear	None
10:00	5	200	5.1	0.00	6.86	0.75	120	1.1	15.1	153.3	Clear	None
10:05	5	200	5.1	0.00	6.87	0.75	26.7	0.69	14.8	150.1	Clear	None
10:10	5	200	5.1	0.00	6.86	0.76	16.7	0.49	14.5	148.8	Clear	None
10:15	5	200	5.1	0.00	6.86	0.76	12.7	0.46	14.6	147.7	Clear	None
10:20	5	200	5.1	0.00	6.86	0.77	10.7	0.42	14.3	145.6	Clear	None
10:25	5	200	5.1	0.00	6.86	0.77	8.98	0.37	14.4	144.3	Clear	None
10:30	5	200	5.1	0.00	6.86	0.77	8.42	0.39	14.4	144	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	6	None

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-104			**Date**	6/8/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, hot
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	3.86	**Total Depth (ft-bmp)**	9.5	**Water Column(ft)**	5.64	**Gallons in Well**	0.92
MP Elevation	NA	**Pump Intake (ft-bmp)**	8	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	00:00	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	11:20						
Purge End:	11:55						

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
11:30	0	200	4.2	0.00	7.07	0.65	20.9	2.25	15.8	78.8	Clear	None
11:35	5	200	4.8	0.00	7.05	0.65	9.93	2.5	16.4	78.2	Clear	None
11:40	5	200	5.5	0.00	7.04	0.66	6.21	2.61	16.5	78.1	Clear	None
11:45	5	200	5.6	0.00	7.06	0.66	3.14	2.81	17.1	77.1	Clear	None
11:50	5	200	5.6	0.00	7.08	0.66	0.02	2.89	16.7	78.5	Clear	None
11:55	5	200	5.6	0.00	7.08	0.66	0.02	2.82	16.7	79	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-105			**Date**	6/9/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Hot, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	2.71	**Total Depth (ft-bmp)**	11.2	**Water Column(ft)**	8.49	**Gallons in Well**	1.38
MP Elevation	NA	**Pump Intake (ft-bmp)**	10	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	09:35	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	08:55						
Purge End:	09:30						

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
09:00	0	200	3.4	0.00	6.67	0.67	31.1	0.62	14.2	201	Clear	None
09:05	5	200	3.4	0.00	6.77	0.65	24.6	0.58	14.6	195.8	Clear	None
09:10	5	200	3.4	0.00	6.83	0.64	4	0.52	14.4	189	Clear	None
09:15	5	200	3.4	0.00	6.87	0.64	0.02	0.46	14	187	Clear	None
09:20	5	200	3.4	0.00	6.89	0.64	0.02	0.38	14.5	184.7	Clear	None
09:25	5	200	3.4	0.00	6.9	0.64	0.02	0.33	14.3	182.2	Clear	None
09:30	5	200	3.4	0.00	6.91	0.64	0.02	0.35	14.3	181.1	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-18-106			**Date**	6/8/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	5.9	**Total Depth (ft-bmp)**	9.6	**Water Column(ft)**	3.7	**Gallons in Well**	0.6
MP Elevation	NA	**Pump Intake (ft-bmp)**	8	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:00	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	09:10						
Purge End:	09:55						

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
09:20	0	200	6.3	0.00	6.54	0.69	17.5	1.54	14.1	207.6	Clear	None
09:25	5	200	6.3	0.00	6.65	0.68	6.63	0.88	14.9	187.8	Clear	None
09:30	5	200	6.3	0.00	6.72	0.68	7.9	0.83	15.1	178.1	Clear	None
09:35	5	200	6.3	0.00	6.77	0.68	8.6	0.77	14.6	170.1	Clear	None
09:40	5	200	6.3	0.00	6.78	0.68	9.8	0.71	14.7	156.6	Clear	None
09:45	5	200	6.3	0.00	6.81	0.68	9.9	0.64	14.7	132.4	Clear	None
09:50	5	200	6.3	0.00	6.81	0.68	9.25	0.63	14.9	129.8	Clear	None
09:55	5	200	6.3	0.00	6.82	0.68	8.99	0.61	14.9	129	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-107			**Date**	06/09/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	83 degrees F/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	19.01	**Total Depth (ft-bmp)**	29.85	**Water Column(ft)**	10.84	**Gallons in Well**	1.76
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:35	**Volumes Purged**		**Sample ID**	MW-19-107_060921	**Sampled by**	Donald Richmond
Purge Start	11:05	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	11:35						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	19.01	0.00	6.69	0.85	0.77	0.26	14.4	-56	Clear	None
11:20	5	5	200	19.01	0.00	6.71	0.85	0.02	0.21	14.5	-57	Clear	None
11:25	5	10	200	19.75	0.00	6.76	0.85	0.02	0.13	14.3	-59.5	Clear	None
11:30	5	15	200	19.75	0.00	6.77	0.85	0.02	0.14	14.5	-60.1	Clear	None
11:35	5	20	200	19.75	0.00	6.81	0.85	0.02	0.13	14.6	-62	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-108			**Date**	06/09/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	78.1 degrees F and Clear. The wind is blowing S/SE at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	18.15	**Total Depth (ft-bmp)**	30.05	**Water Column(ft)**	11.9	**Gallons in Well**	1.93
MP Elevation		**Pump Intake (ft-bmp)**	27.55	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:40	**Volumes Purged**	0.96	**Sample ID**	MW-19-108_060921	**Sampled by**	Austin Westhuis
Purge Start	10:15	**Gallons Purged**	1.85	**Replicate/ Code No.**			
Purge End	10:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	18.15	0.26	6.73	0.45	14.6	0.45	13.4	81.2	Clear	None
10:25	5	5	200	18.15	0.53	6.74	1.14	3.6	0.18	12.3	47.9	Clear	None
10:30	5	10	200	18.15	0.79	6.75	1.13	2.35	0.1	12.1	28.3	Clear	None
10:35	5	15	200	18.15	1.06	6.74	1.13	2.08	0.1	12	27	Clear	None
10:40	5	20	200	18.15	1.32	6.75	1.13	1.45	0.1	11.9	24.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-111			**Date**	06/09/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	73.9 degrees F and Mostly Clear. The wind is blowing S/SE at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	23.25	**Total Depth (ft-bmp)**	27.4	**Water Column(ft)**	4.15	**Gallons in Well**	0.67
MP Elevation		**Pump Intake (ft-bmp)**	24.9	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:30	**Volumes Purged**	2.37	**Sample ID**	MW-19-111_060921	**Sampled by**	Austin Westhuis
Purge Start	09:10	**Gallons Purged**	1.59	**Replicate/ Code No.**			
Purge End	09:35						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:15	0	0	200	23.51	0.26	6.65	1.24	3.51	3.06	12.4	129.6	Clear	None
09:20	5	5	200	23.51	0.53	6.69	1.24	1.81	2.99	12.4	107.8	Clear	None
09:25	5	10	200	23.51	0.79	6.7	1.24	1.32	2.96	12.3	106.6	Clear	None
09:30	5	15	200	23.51	1.06	6.71	1.25	1.24	2.93	12.3	103.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-19-112			**Date**	06/08/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	79.0 degrees F and Mostly Cloudy. The wind is blowing E/NE at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.49	**Total Depth (ft-bmp)**	17.55	**Water Column(ft)**	12.06	**Gallons in Well**	1.96
MP Elevation		**Pump Intake (ft-bmp)**	15.05	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:30	**Volumes Purged**	1.08	**Sample ID**	MW-19-112_060821	**Sampled by**	Austin Westhuis
Purge Start	12:00	**Gallons Purged**	2.11	**Replicate/ Code No.**			
Purge End	12:35						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	6.58	0.26	6.44	5.57	4.81	0.23	17.3	-79.1	Clear	None
12:10	5	5	200	7.36	0.53	6.5	6.65	2.48	0.1	18.1	-95.9	Clear	None
12:15	5	10	200	7.4	0.79	6.5	6.62	2.12	0.1	17.9	-96.6	Clear	None
12:20	5	15	200	7.4	1.06	6.52	6.45	2.01	0.1	17.5	-99.7	Clear	None
12:25	5	20	200	7.42	1.32	6.53	6.41	1.78	0.1	17.3	-100.4	Clear	None
12:30	5	25	200	7.44	1.59	6.54	6.42	1.52	0.1	17.4	-101.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-19-114			**Date**	6/8/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Hot, sunny
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)**	10.8	**Water Column(ft)**	7.46	**Gallons in Well**	1.21
MP Elevation	NA	**Pump Intake (ft-bmp)**	10	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:20	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Peristaltic
Purge Start:	12:45						
Purge End:	13:15						

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
12:55	0	200	4.2	0.00	7.08	0.55	1.41	0.44	16.7	107.3	Clear	None
13:00	5	200	4.2	0.00	7.09	0.55	0.02	0.2	16.3	105.3	Clear	None
13:05	5	200	4.2	0.00	7.08	0.55	0.02	0.2	16.2	104	Clear	None
13:10	5	200	4.2	0.00	7.07	0.55	0.02	0.18	16	102.6	Clear	None
13:15	5	200	4.2	0.00	7.08	0.55	0.02	0.17	15.9	102	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

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Project Number	30075941	**Well ID**	MW-19-115			**Date**	06/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	70 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	57.5	**Total Depth (ft-bmp)**	80.69	**Water Column(ft)**	23.19	**Gallons in Well**	3.77
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:50	**Volumes Purged**		**Sample ID**	MW-19-115_060421	**Sampled by**	Donald Richmond
Purge Start	11:20	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	11:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	57.5	0.00	7.02	2.26	1.58	1.05	22.5	-43.1	Clear	None
11:35	5	5	200	57.5	0.00	7.04	2.34	2.28	1.04	22.9	-57.2	Clear	None
11:40	5	10	200	57.5	0.00	7.06	2.38	2.62	1.07	22.7	-61.3	Clear	None
11:45	5	15	200	57.5	0.00	7.04	2.43	1.72	1.08	23	-61.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

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Project Number	30075941	**Well ID**	MW-19-116			**Date**	06/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	70 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	55.56	**Total Depth (ft-bmp)**	73.19	**Water Column(ft)**	17.63	**Gallons in Well**	2.86
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:55	**Volumes Purged**		**Sample ID**	MW-19-116_060421	**Sampled by**	Donald Richmond
Purge Start	10:20	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	10:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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
10:30	0	0	200	55.56	0.00	6.53	1.48	0.88	0.89	18.5	-44	Clear	None
10:35	5	5	200	55.88	0.00	6.64	1.49	0.02	0.49	18.6	-65.2	Clear	None
10:40	5	10	200	55.88	0.00	6.75	1.49	0.02	0.39	18.6	-72.4	Clear	None
10:45	5	15	200	55.88	0.00	6.82	1.49	0.02	0.33	18.6	-75.3	Clear	None
10:50	5	20	200	55.88	0.00	6.88	1.51	0.02	0.27	18.7	-79.6	Clear	None
10:55	5	25	200	55.88	0.00	7.04	1.57	0.02	0.3	20.4	-80.9	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-19-117			**Date**	6/4/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	57.97	**Total Depth (ft-bmp)**	62.8	**Water Column(ft)**	4.83	**Gallons in Well**	0.78
MP Elevation	NA	**Pump Intake (ft-bmp)**	60	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:45	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	12:46						
Purge End:	13:40						

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
13:00	0	200	58.5	0.00	6.76	1.07	40.9	1.08	19	-58	Clear	None
13:05	5	200	58.5	0.00	6.81	1.06	30.2	0.45	19.3	-69.9	Clear	None
13:10	5	200	58.5	0.00	6.85	1.06	17.9	0.24	19.4	-77.4	Clear	None
13:15	5	200	58.5	0.00	6.87	1.06	12.9	0.18	20.2	-97.4	Clear	None
13:20	5	200	58.5	0.00	6.91	1.05	13.7	0.17	20.9	-105.5	Clear	None
13:25	5	200	58.5	0.00	6.95	1.06	15.8	0.14	20.1	-114	Clear	None
13:30	5	200	58.5	0.00	6.96	1.07	15.6	0.14	20.1	-119.6	Clear	None
13:35	5	200	58.5	0.00	6.98	1.1	15.5	0.18	19.8	-122.6	Clear	None
13:40	5	200	58.5	0.00	6.99	1.1	14.4	0.16	19.7	-126.8	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-19-120			**Date**	6/4/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.55	**Total Depth (ft-bmp)**	71	**Water Column(ft)**	8.45	**Gallons in Well**	1.37
MP Elevation	NA	**Pump Intake (ft-bmp)**	68	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	11:20	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	10:15						
Purge End:	11:15						

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	200	62.5	0.00	7.82	0.82	5.66	8.06	18.2	106.4	Clear	None
10:25	5	200	62.5	0.00	7.47	1.19	2.4	6.38	17	112.5	Clear	None
10:30	5	200	62.5	0.00	7.29	1.48	0.02	6.16	17	110.9	Clear	None
10:35	5	200	62.5	0.00	6.97	2.05	0.02	4.27	17.4	105.6	Clear	None
10:40	5	200	62.5	0.00	6.93	2.14	0.02	1.84	17.4	102.2	Clear	None
10:45	5	200	62.5	0.00	6.92	2.15	0.02	1	17.6	98.8	Clear	None
10:50	5	200	62.5	0.00	6.91	2.15	0.02	0.64	17.8	91.4	Clear	None
10:55	5	200	62.5	0.00	6.9	2.16	0.02	0.51	17.5	77.5	Clear	None
11:00	5	200	62.5	0.00	6.88	2.17	0.02	0.36	17.8	60.7	Clear	None
11:05	5	200	62.5	0.00	6.88	2.16	0.02	0.25	18	52.2	Clear	None
11:10	5	200	62.5	0.00	6.9	2.05	0.02	0.26	17.8	48.7	Clear	None
11:15	5	200	62.5	0.00	6.91	2.04	0.02	0.29	17.9	45.5	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-19-121			**Date**	6/4/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Overcast, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.55	**Total Depth (ft-bmp)**	74.2	**Water Column(ft)**	11.65	**Gallons in Well**	1.89
MP Elevation	NA	**Pump Intake (ft-bmp)**	70	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	09:35	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	08:55						
Purge End:	09:30						

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
09:05	0	200	62.5	0.00	7.15	1.56	10.4	5.56	17.9	109.5	Clear	None
09:10	5	200	62.5	0.00	7.19	1.56	6.4	5.88	18	108.1	Clear	None
09:15	5	200	62.5	0.00	7.2	1.57	5.91	4.77	18.2	106.2	Clear	None
09:20	5	200	62.5	0.00	7.21	1.58	1.58	4.65	18.1	104.4	Clear	None
09:25	5	200	62.5	0.00	7.25	1.58	0.02	4.82	17.7	103.4	Clear	None
09:30	5	200	62.5	0.00	7.26	1.58	0.02	4.36	17.9	103.8	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-19-122	**Date**	6/3/2021
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Hot, sunny

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.8	**Total Depth (ft-bmp)**	67.6	**Water Column(ft)**	4.8	**Gallons in Well**	0.78
MP Elevation	NA	**Pump Intake (ft-bmp)**	65	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:30	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	13:15						
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
13:40	0	200	62	0.00	6.6	3.98	369	1.55	18.3	66.6	Cloudy	None
13:45	5	200	62	0.00	6.61	4	320	1.35	18.3	58.4	Cloudy	None
13:50	5	200	62	0.00	6.61	4.02	195	1.38	18.5	57.5	Cloudy	None
13:55	5	200	62	0.00	6.62	4.03	193	1.31	17.6	55.2	Cloudy	None
14:00	5	200	62	0.00	6.61	4.02	165	1.3	18.2	54.3	Cloudy	None
14:05	5	200	62	0.00	6.62	4.03	143	1.29	18.3	53.7	Cloudy	None
14:10	5	200	62	0.00	6.62	4.04	142	1.17	18.4	53.4	Cloudy	None
14:15	5	200	62	0.00	6.63	4.05	139	1.16	18.3	52.7	Cloudy	None
14:20	5	200	62	0.00	6.63	4.07	136	1.19	18.7	52.5	Cloudy	None
14:25	5	200	62	0.00	6.64	4.09	145	1.2	17.9	52.7	Cloudy	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

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Project Number	30075941	**Well ID**	MW-19-123			**Date**	06/07/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	73.0 degrees F and Clear. The wind is blowing S/SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	59.99	**Total Depth (ft-bmp)**	74.75	**Water Column(ft)**	14.76	**Gallons in Well**	2.4
MP Elevation		**Pump Intake (ft-bmp)**	72.25	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:35	**Volumes Purged**	1.10	**Sample ID**	MW-19-123_060721	**Sampled by**	Austin Westhuis
Purge Start	09:05	**Gallons Purged**	2.64	**Replicate/ Code No.**			
Purge End	10:07						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	61.3	0.26	6.68	1.79	42.1	6.32	14.3	118.1	Clear	None
09:15	5	5	200	61.3	0.53	6.68	1.78	21.1	6.32	14.1	117.7	Clear	None
09:20	5	10	200	61.3	0.79	6.71	1.77	8.31	6.16	14.4	117.3	Clear	None
09:25	5	15	200	61.3	1.06	6.73	1.76	2.16	6.09	14.3	117.1	Clear	None
09:30	5	20	200	61.3	1.32	6.73	1.76	1.79	6.07	14.2	116.5	Clear	None
09:35	5	25	200	61.3	1.59	6.74	1.77	1.7	6.03	14.1	116.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	40 mL Glass	3	HCL
Nitrate	250 mL Plastic	1	None
Total Phosphorus and TKN	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-19-124	**Date**	6/3/2021
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)	62	**Total Depth (ft-bmp)**	72.6	**Water Column(ft)**	10.6	**Gallons in Well**	1.72
MP Elevation	NA	**Pump Intake (ft-bmp)**	69	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	12:25	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	11:45						
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	200	62	0.00	6.78	2.85	11.1	0.48	18.8	-15.5	Clear	None
12:00	5	200	62	0.00	6.78	2.48	0.11	0.21	18.3	-31.3	Clear	None
12:05	5	200	62	0.00	6.78	2.85	0.02	0.16	18.7	-37.4	Clear	None
12:10	5	200	62	0.00	6.78	2.88	0.02	0.13	18.2	-41.2	Clear	None
12:15	5	200	62	0.00	6.78	2.89	0.02	0.14	18.4	-42.6	Clear	None
12:20	5	200	62	0.00	6.78	2.89	0.02	0.12	18.7	-43.4	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-20-126	**Date**	6/3/2021
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Sunny, hot

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	69.55	**Total Depth (ft-bmp)**	77.3	**Water Column(ft)**	7.75	**Gallons in Well**	1.26
MP Elevation	NA	**Pump Intake (ft-bmp)**	73	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	11:30	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	10:25						
Purge End:	11:30						

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
10:35	0	200	69.5	0.00	7.06	3.21	317	8.13	16.9	62.8	Clear	None
10:40	5	200	69.5	0.00	7.05	3.17	250	6.57	18.9	61.3	Clear	None
10:45	5	200	69.5	0.00	7.06	3.21	226	7.6	18.5	61.2	Clear	None
10:50	5	200	69.5	0.00	7.06	3.19	201	7.87	16.4	64.4	Clear	None
10:55	5	200	69.5	0.00	7.03	3.2	181	7.25	16.1	66.1	Clear	None
11:00	5	200	69.5	0.00	7.03	3.19	137	7.38	16.1	66.7	Clear	None
11:05	5	200	69.5	0.00	7.03	3.19	116	7.13	15.9	66.8	Clear	None
11:10	5	200	69.5	0.00	7.03	3.19	88.7	7.16	15.7	66.7	Clear	None
11:15	5	200	69.5	0.00	7.02	3.17	78.8	6.62	16.2	66.3	Clear	None
11:20	5	200	69.5	0.00	7.02	3.18	72.5	6.68	16.4	66	Clear	None
11:25	5	200	69.5	0.00	7.01	3.18	69.9	6.67	16.3	65.6	Clear	None
11:30	5	200	69.5	0.00	7.02	3.18	68.8	6.7	16.3	65.3	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-20-127			**Date**	6/3/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny, warm
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	62.34	**Total Depth (ft-bmp)**	78.7	**Water Column(ft)**	16.36	**Gallons in Well**	2.66
MP Elevation	NA	**Pump Intake (ft-bmp)**	74	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	09:45	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:00						
Purge End:	09:45						

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
09:15	0	200	63.1	0.00	6.55	3.02	13.8	0.38	16.5	46.3	Clear	None
09:20	5	200	63.1	0.00	6.67	3.12	0.02	0.26	16.1	-11.9	Clear	None
09:25	5	200	63.1	0.00	6.7	3.18	0.02	0.35	16.3	-23.3	Clear	None
09:30	5	200	63.1	0.00	6.72	3.23	0.02	0.29	16.2	-27.5	Clear	None
09:35	5	200	63.1	0.00	6.73	3.25	0.02	0.26	16	-30.2	Clear	None
09:40	5	200	63.1	0.00	6.74	3.25	0.02	0.24	16.5	-32.3	Clear	None
09:45	5	200	63.1	0.00	6.74	3.25	0.02	0.23	16.5	-34.4	Clear	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-20-128	**Date**	6/2/2021
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Overcast, warm

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	67.7	**Total Depth (ft-bmp)**	70.6	**Water Column(ft)**	2.9	**Gallons in Well**	0.47
MP Elevation	NA	**Pump Intake (ft-bmp)**	69	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	16:20	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	15:10						
Purge End:	16:20						

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
15:20	0	200	67.5	0.00	7.6	2.64	1000	9	18.1	76.5	Cloudy	None
15:25	5	200	67.5	0.00	7.51	2.66	1000	8.75	18.1	91.6	Cloudy	None
15:30	5	200	67.5	0.00	7.52	2.66	1000	8.75	18.2	95.5	Cloudy	None
15:35	5	200	67.5	0.00	7.54	2.68	1000	8.53	18.2	97.7	Cloudy	None
15:40	5	200	67.5	0.00	7.54	2.67	1000	8.48	18.5	98	Cloudy	None
15:45	5	200	67.5	0.00	7.57	2.68	578	8.31	18.4	102.9	Cloudy	None
15:50	5	200	67.5	0.00	7.57	2.68	492	8.25	18	107.8	Cloudy	None
15:55	5	200	67.5	0.00	7.58	2.69	190	8.17	17.9	110.1	Cloudy	None
16:00	5	200	67.5	0.00	7.58	2.68	220	8.3	17.6	114.7	Cloudy	None
16:05	5	200	67.5	0.00	7.58	2.69	202	7.94	17.5	117	Cloudy	None
16:10	5	200	67.5	0.00	7.59	2.68	195	7.84	17.5	119.7	Cloudy	None
16:15	5	200	67.5	0.00	7.59	2.69	178	8.1	17.6	120.1	Cloudy	None
16:20	5	200	67.5	0.00	7.59	2.69	181	7.95	17.7	120.9	Cloudy	None

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

Sampling By Jake Pisarkiewicz

Comments: Well was under pressure due to system running, could hear bubbling in well. Very turbid, sampled after one hour of purging, turbidity was still high

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	MW-20-129	**Date**	6/2/2021
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Cloudy, hot

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	59.73	**Total Depth (ft-bmp)**	71.7	**Water Column(ft)**	11.97	**Gallons in Well**	1.95
MP Elevation	NA	**Pump Intake (ft-bmp)**	68	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	14:40	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	13:55						

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
14:05	0	200	62.5	0.00	6.75	3.71	15.3	0.32	18.8	42.6	Clear	None
14:10	5	200	62.5	0.00	6.8	3.65	11	0.32	18.3	9.5	Clear	None
14:15	5	200	62.5	0.00	6.82	3.72	9.5	0.41	18.1	-8.9	Clear	None
14:20	5	200	62.5	0.00	6.83	3.82	7.78	0.29	18.2	-20	Clear	None
14:25	5	200	62.5	0.00	6.83	3.97	5.46	0.23	17.7	-26.1	Clear	None
14:30	5	200	62.5	0.00	6.83	4.12	3.41	0.2	17.6	-30	Clear	None
14:35	5	200	62.5	0.00	6.83	4.14	2.8	0.21	17.7	-31.5	Clear	None
14:40	5	200	62.5	0.00	6.83	4.17	2.1	0.2	17.7	-31.8	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-130			**Date**	06/03/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	64.9 degrees F and Clear. The wind is blowing undefined at 0.0 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	62.69	**Total Depth (ft-bmp)**	70.3	**Water Column(ft)**	7.61	**Gallons in Well**	1.24
MP Elevation		**Pump Intake (ft-bmp)**	68	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:55	**Volumes Purged**	0.96	**Sample ID**	MW-20-130_060321	**Sampled by**	Billy Cobern
Purge Start	09:10	**Gallons Purged**	1.19	**Replicate/ Code No.**			
Purge End	10:05						

Time	Minutes Elapsed	Total Elapsed Minutes	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
09:15	0	0	100	62.7	0.13	6.93	1.25	284	2.02	16.3	82.9	Clear	None
09:20	5	5	100	62.7	0.26	6.98	1.22	301	1.1	15.8	42.9	Clear	None
09:25	5	10	100	62.7	0.40	7.01	1.21	291	0.97	16.6	28.4	Clear	None
09:30	5	15	100	62.7	0.53	7.03	1.2	275	1.14	17	23.3	Clear	None
09:35	5	20	100	62.7	0.66	7.04	1.18	187	0.97	16.9	27.2	Clear	None
09:40	5	25	100	62.7	0.79	7.05	1.18	156	1.13	17	28.4	Clear	None
09:45	5	30	100	62.7	0.92	7.04	1.18	141	1.02	17	28.7	Clear	None
09:50	5	35	100	62.7	1.06	7.04	1.18	135	1	17	28.4	Clear	None
09:55	5	40	100	62.7	1.19	7.04	1.17	138	1.01	17	28.1	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4 Dioxane 8260B SIMS	40 mL Glass	3	HCL
PFAS	250mL HDPE 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 condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-131			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing S/SE at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.25	**Total Depth (ft-bmp)**	13.68	**Water Column(ft)**	4.43	**Gallons in Well**	0.72
MP Elevation		**Pump Intake (ft-bmp)**	11.18	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:55	**Volumes Purged**	6.42	**Sample ID**	MW-20-131_060221	**Sampled by**	Austin Westhuis
Purge Start	11:30	**Gallons Purged**	4.62	**Replicate/ Code No.**			
Purge End	00:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	500	9.45	0.66	7.15	3.47	3.61	0.44	14.7	82.1	Clear	None
11:40	5	5	500	9.45	1.32	7.18	3.42	1.91	0.27	14.7	74.5	Clear	None
11:45	5	10	500	9.45	1.98	7.21	3.27	1.46	0.26	14.6	66.8	Clear	None
11:50	5	15	500	9.45	2.64	7.21	3.25	1.4	0.26	14.6	61.6	Clear	None
11:55	5	20	500	9.45	3.30	7.21	3.25	1.25	0.25	14.6	61	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-20-132			**Date**	06/02/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	It is Clear. The wind is blowing E/SE at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	5.85	**Total Depth (ft-bmp)**	10.8	**Water Column(ft)**	4.95	**Gallons in Well**	0.8
MP Elevation		**Pump Intake (ft-bmp)**	8.3	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:20	**Volumes Purged**	7.43	**Sample ID**	MW-20-132_060221	**Sampled by**	Austin Westhuis
Purge Start	09:50	**Gallons Purged**	5.94	**Replicate/ Code No.**	DUP-10		
Purge End	10:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	500	5.85	0.66	7.33	1.88	4.62	0.55	11.7	17.6	Clear	None
10:00	5	5	500	5.85	1.32	7.39	1.74	1.81	0.29	11.7	6.5	Clear	None
10:05	5	10	500	5.85	1.98	7.41	1.64	1.61	0.27	11.7	-1.9	Clear	None
10:10	5	15	500	5.85	2.64	7.43	1.61	1.42	0.26	11.7	-2.3	Clear	None
10:15	5	20	500	5.85	3.30	7.44	1.59	1.28	0.25	11.6	-3.3	Clear	None
10:20	5	25	500	5.85	3.96	7.44	1.59	1.11	0.25	11.6	-3.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE Plastic	4	None
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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-21-133			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	72.0 degrees F and Clear. The wind is blowing S/SE at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.19	**Total Depth (ft-bmp)**	18.74	**Water Column(ft)**	8.55	**Gallons in Well**	1.39
MP Elevation		**Pump Intake (ft-bmp)**	16	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:45	**Volumes Purged**	0.67	**Sample ID**	MW-21-133_060221	**Sampled by**	Billy Cobern
Purge Start	12:10	**Gallons Purged**	0.92	**Replicate/ Code No.**			
Purge End	12:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	11.05	0.13	6.97	0.96	8.78	0.68	12.1	166.1	Clear	None
12:20	5	5	100	11.16	0.26	6.98	0.96	8.01	0.56	12.9	126.7	Clear	None
12:25	5	10	100	11.31	0.40	6.98	0.97	6.42	0.48	13.1	104.7	Clear	None
12:30	5	15	100	11.45	0.53	6.98	0.97	5.45	0.44	13	96.8	Clear	None
12:35	5	20	100	11.59	0.66	6.98	0.97	4.64	0.41	13	94.6	Clear	None
12:40	5	25	100	11.73	0.79	6.98	0.97	4.01	0.41	12.9	93	Clear	None
12:45	5	30	100	11.88	0.92	6.98	0.97	4.13	0.41	12.9	91.1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: On site Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-21-134			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	73.9 degrees F and Mostly Clear. The wind is blowing E at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.62	**Total Depth (ft-bmp)**	20.08	**Water Column(ft)**	9.46	**Gallons in Well**	1.54
MP Elevation		**Pump Intake (ft-bmp)**	17.5	**Purge Method**	Low-Flow	**Purge Equipment**	Peristaltic
Sample Time	13:40	**Volumes Purged**	0.60	**Sample ID**	MW-21-134	**Sampled by**	Billy Cobern
Purge Start	13:05	**Gallons Purged**	0.92	**Replicate/ Code No.**		**Sample Type**	Grab
Purge End	13:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	11.13	0.13	7.05	0.92	7.34	1.17	13.7	177.8	--	--
13:15	5	5	100	11.32	0.26	7.05	0.91	5.56	0.92	14.1	116.5	--	--
13:20	5	10	100	11.51	0.40	7.05	0.91	4.52	0.76	13.8	86.6	--	--
13:25	5	15	100	11.69	0.53	7.05	0.91	4.78	0.67	14	76.9	--	--
13:30	5	20	100	11.87	0.66	7.05	0.91	3.76	0.67	14.1	74	--	--
13:35	5	25	100	12.04	0.79	7.05	0.91	3.58	0.68	14.2	72.3	--	--
13:40	5	30	100	12.20	0.92	7.05	0.91	3.33	0.67	14.3	70.4	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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:	On site Plant 6	Well Locked at Arrival:	yes
Condition of Well:	Good condition	Well Locked at Departure:	yes
Well Completion:	Stick-up	Key Number To Well:	2035

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

mS/cm = milliSiemens 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	30075941	**Well ID**	MW-21-135			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	73.9 degrees F and Clear. The wind is blowing E/SE at 8.1 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	25.33	**Total Depth (ft-bmp)**	29.55	**Water Column(ft)**	4.22	**Gallons in Well**	0.69
MP Elevation		**Pump Intake (ft-bmp)**	28	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:40	**Volumes Purged**	1.53	**Sample ID**	MW-21-135	**Sampled by**	Billy Cobern
Purge Start	14:00	**Gallons Purged**	1.06	**Replicate/ Code No.**			
Purge End	14:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	25.85	0.13	7.82	1.08	94.8	1.54	16	250.5	Clear	None
14:10	5	5	100	26.04	0.26	7.81	1.08	39.8	1.32	15.2	250.5	Clear	None
14:15	5	10	100	26.19	0.40	7.79	1.07	28.5	1.18	15	251.5	Clear	None
14:20	5	15	100	26.34	0.53	7.77	1.08	20.2	1.78	14.5	253.8	Clear	None
14:25	5	20	100	26.48	0.66	7.77	1.07	18.7	1.19	14.7	254.3	Clear	None
14:30	5	25	100	26.61	0.79	7.75	1.07	17.6	1.14	14.6	255	Clear	None
14:35	5	30	100	26.74	0.92	7.75	1.07	17.4	1.12	14.6	255.2	Clear	None
14:40	5	35	100	26.86	1.06	7.75	1.07	17.2	1.09	14.6	255.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: On site Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-21-136			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	It is Clear. The wind is blowing E/SE at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.48	**Total Depth (ft-bmp)**	13.72	**Water Column(ft)**	6.24	**Gallons in Well**	1.01
MP Elevation		**Pump Intake (ft-bmp)**	12	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	09:50	**Volumes Purged**	0.78	**Sample ID**	MW-21-136_060221	**Sampled by**	Billy Cobern
Purge Start	09:20	**Gallons Purged**	0.79	**Replicate/ Code No.**			
Purge End	09:55						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	7.65	0.13	7.1	0.92	18.7	0.84	13.1	340	Clear	None
09:30	5	5	100	7.71	0.26	7.15	0.91	9.62	0.83	13	335.4	Clear	None
09:35	5	10	100	7.79	0.40	7.2	0.88	7.21	0.72	12.9	327.6	Clear	None
09:40	5	15	100	7.85	0.53	7.22	0.85	6.19	0.65	12.8	323.5	Clear	None
09:45	5	20	100	7.89	0.66	7.22	0.85	5.91	0.64	12.8	322.8	Clear	None
09:50	5	25	100	7.93	0.79	7.22	0.84	5.47	0.63	12.8	321.7	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Off site, Plant-6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-21-137			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	It is Clear. The wind is blowing E/SE at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.52	**Total Depth (ft-bmp)**	11.5	**Water Column(ft)**	1.98	**Gallons in Well**	0.32
MP Elevation		**Pump Intake (ft-bmp)**	11	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	10:45	**Volumes Purged**	2.89	**Sample ID**	MW-21-137_060221	**Sampled by**	Billy Cobern
Purge Start	10:10	**Gallons Purged**	0.92	**Replicate/ Code No.**			
Purge End	10:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	9.73	0.13	6.81	0.98	8.67	0.5	12.5	312.1	Clear	None
10:20	5	5	100	9.77	0.26	6.82	0.97	7.03	0.7	12.6	307.7	Clear	None
10:25	5	10	100	9.78	0.40	6.82	0.97	4.47	0.58	12.6	304.3	Clear	None
10:30	5	15	100	9.78	0.53	6.82	0.97	3.89	0.57	12.4	301.8	Clear	None
10:35	5	20	100	9.78	0.66	6.82	0.97	3.21	0.52	12.5	301.3	Clear	None
10:40	5	25	100	9.78	0.79	6.82	0.97	2.78	0.53	12.4	300.8	Clear	None
10:45	5	30	100	9.78	0.92	6.82	0.97	2.64	0.53	12.6	300.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Off site, Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-21-138			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	69.1 degrees F and Clear. The wind is blowing SE at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	21.46	**Total Depth (ft-bmp)**	28.63	**Water Column(ft)**	7.17	**Gallons in Well**	1.17
MP Elevation		**Pump Intake (ft-bmp)**	26	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:40	**Volumes Purged**	0.90	**Sample ID**	MW-21-138_060221	**Sampled by**	Billy Cobern
Purge Start	11:00	**Gallons Purged**	1.06	**Replicate/ Code No.**			
Purge End	11:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	100	21.84	0.13	6.94	1.76	51.9	1.87	14.1	39.7	Clear	None
11:10	5	5	100	22.12	0.26	6.93	1.74	26.4	0.79	14.1	24.7	Clear	None
11:15	5	10	100	22.33	0.40	6.98	1.69	19.4	0.62	14.1	40.9	Clear	None
11:20	5	15	100	22.52	0.53	7.01	1.63	15.2	0.55	14.1	44.5	Clear	None
11:25	5	20	100	22.74	0.66	7	1.57	11.8	0.58	13.6	55.7	Clear	None
11:30	5	25	100	22.94	0.79	7	1.55	10.2	0.54	13.6	63.6	Clear	None
11:35	5	30	100	23.12	0.92	7	1.56	9.74	0.55	13.6	68.3	Clear	None
11:40	5	35	100	23.3	1.06	7	1.56	9.61	0.53	13.6	69.6	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE 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: Off site, Plant 6

Condition of Well: Good condition

Well Completion: Flush mount

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-23			**Date**	06/08/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	83 degrees F/ overcast °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	44.76	**Total Depth (ft-bmp)**	61.35	**Water Column(ft)**	16.59	**Gallons in Well**	2.7
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	15:45	**Volumes Purged**		**Sample ID**	MW-23_060821	**Sampled by**	Donald Richmond
Purge Start	14:55	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	15:45						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	44.76	0.00	7.17	0.73	7.29	4.17	18.6	71.6	Clear	None
15:10	5	5	200	44.76	0.00	6.88	0.99	6.82	1.76	18.3	-3	Clear	None
15:15	5	10	200	44.76	0.00	6.89	1.13	4.87	0.9	17.9	-40.1	Clear	None
15:20	5	15	200	44.76	0.00	6.93	1.18	4.02	0.62	18.8	-50.7	Clear	None
15:25	5	20	200	44.76	0.00	7.08	1.19	3.84	0.56	18.1	-78.2	Clear	None
15:30	5	25	200	44.76	0.00	7.06	1.22	0.02	0.39	19	-91.4	Clear	None
15:35	5	30	200	44.76	0.00	7.11	1.24	0.02	0.32	20.5	-99.2	Clear	None
15:40	5	35	200	44.76	0.00	7.14	1.29	0.02	0.31	20.8	-108.4	Clear	None
15:45	5	40	200	44.76	0.00	7.13	1.25	0.02	0.3	19.7	-109.8	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	MW-91-2R			**Date**	06/08/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	79 degrees F/ overcast °F, Overcast, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	56.45	**Total Depth (ft-bmp)**	84.2	**Water Column(ft)**	27.75	**Gallons in Well**	4.51
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	14:20	**Volumes Purged**		**Sample ID**	MW-91-2R_060821	**Sampled by**	Donald Richmond
Purge Start	13:45	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	14:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	56.45	0.00	7.04	1.27	0.02	3.36	24.2	19.4	Clear	None
14:10	5	5	200	56.45	0.00	6.83	1.28	0.02	2.46	25.8	33.9	Clear	None
14:15	5	10	200	56.45	0.00	6.89	1.31	0.02	2.33	27	30	Clear	None
14:20	5	15	200	56.45	0.00	6.97	1.3	0.02	2.36	25.9	28	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	P6-SB-07			**Date**	06/02/2021
Project Name/Location	RACER Lansing/Lansing, MI		**Weather(°F)**	72.0 degrees F and Cloudy. The wind is blowing SE at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	7.51	**Total Depth (ft-bmp)**	23.63	**Water Column(ft)**	16.12	**Gallons in Well**	2.62
MP Elevation		**Pump Intake (ft-bmp)**	21	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	16:40	**Volumes Purged**	0.35	**Sample ID**	P6-SB-07	**Sampled by**	Billy Cobern
Purge Start	16:05	**Gallons Purged**	0.92	**Replicate/ Code No.**	P6-SB-07_060221 (MS/MSD)		
Purge End	16:50						

Time	Minutes Elapsed	Total Elapsed Minutes	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
16:10	0	0	100	7.59	0.13	7.61	0.565	220	0.99	14.9	165.3	Clear	None
16:15	5	5	100	7.59	0.26	7.55	0.561	26.4	0.45	14.6	46.6	Clear	None
16:20	5	10	100	7.59	0.40	7.54	0.56	16.2	0.31	14.2	-57.2	Clear	None
16:25	5	15	100	7.59	0.53	7.54	0.561	12.2	0.28	14.1	-78.5	Clear	None
16:30	5	20	100	7.59	0.66	7.54	0.561	9.74	0.27	14.1	-83.2	Clear	None
16:35	5	25	100	7.59	0.79	7.54	0.561	9.45	0.28	14.1	-84.5	Clear	None
16:40	5	30	100	7.59	0.92	7.54	0.562	9.21	0.26	14.1	-86.2	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	6	None

Comments: MS/MSD collected

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: On site Plant 6

Condition of Well: Good condition

Well Completion: Stick-up

Well Locked at Arrival: yes

Well Locked at Departure: yes

Key Number To Well: 2035

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	PW-14-01			**Date**	06/04/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	70 degrees/ sunny °F, Sunny, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	61.15	**Total Depth (ft-bmp)**	81.85	**Water Column(ft)**	20.7	**Gallons in Well**	3.36
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:00	**Volumes Purged**		**Sample ID**	PW-14-01_060421	**Sampled by**	Donald Richmond
Purge Start	12:35	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	13:00						

Time	Minutes Elapsed	Total Elapsed Minutes	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
12:45	0	0	200	61.15	0.00	7.22	4.15	9.93	6.78	27.6	32.3	Clear	None
12:50	5	5	200	61.15	0.00	7.22	4.19	9.37	7.21	27.8	34	Clear	None
12:55	5	10	200	61.15	0.00	7.25	4.2	8.48	6.88	27.9	37.3	Clear	None
13:00	5	15	200	61.15	0.00	7.28	4.22	8.04	7.28	28.2	38.5	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 522	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

ARCADIS Design & Consultancy for natural and built assets

RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	PW-14-02	**Date**	6/2/2021
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Sunny, hot

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	6	**Well Material**	
Static Water Level (ft-bmp)	62.84	**Total Depth (ft-bmp)**	80	**Water Column(ft)**	17.16	**Gallons in Well**	25.1
MP Elevation	NA	**Pump Intake (ft-bmp)**	76	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:30	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	12:55						
Purge End:	13:30						

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
13:05	0	200	63.15	0.00	7.55	2.39	0.49	9.78	19.5	157.1	Clear	None
13:10	5	200	63.15	0.00	7.54	2.34	0.02	8.55	20.1	156.8	Clear	None
13:15	5	200	63.15	0.00	7.54	2.32	0.02	8.73	20.5	156.9	Clear	None
13:20	5	200	63.15	0.00	7.54	2.33	0.02	8.8	20.6	156.7	Clear	None
13:25	5	200	63.15	0.00	7.55	2.34	0.02	8.56	20.6	156.8	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	PW-14-03			**Date**	06/08/2021
Project Name/Location	RACER Lansing/ Lansing, MI		**Weather(°F)**	75 degrees F, light rain °F, Overcast, E winds at 6 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	6	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	66.55	**Total Depth (ft-bmp)**	95	**Water Column(ft)**	28.45	**Gallons in Well**	41.61
MP Elevation		**Pump Intake (ft-bmp)**		**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:20	**Volumes Purged**		**Sample ID**	PW-14-03_060821	**Sampled by**	Donald Richmond
Purge Start	10:40	**Gallons Purged**		**Replicate/ Code No.**			
Purge End	11:20						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	66.55	0.00	7.2	3.31	36	9.5	20.5	55.2	Clear	None
11:05	5	5	200	66.55	0.00	7.25	3.28	0.02	8.77	20	56.6	Clear	None
11:10	5	10	200	66.55	0.00	7.26	3.26	0.02	8.94	19.8	57.4	Clear	None
11:15	5	15	200	66.55	0.00	7.26	3.28	0.02	8.63	20.2	58.3	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	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: Racer Lansing

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	TW-14-02	**Date**	6/2/2021
Project Name/Location	RACER Lansing, MI			**Weather(°F)**	Hot, sunny

Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	2	**Well Material**	
Static Water Level (ft-bmp)	58.9	**Total Depth (ft-bmp)**	72	**Water Column(ft)**	13.1	**Gallons in Well**	2.13
MP Elevation	NA	**Pump Intake (ft-bmp)**	68	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	12:05	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	11:20						
Purge End:	12:00						

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
11:30	0	200	61.1	0.00	7.71	5.04	70.3	9.31	19	177.4	Clear	None
11:35	5	200	61.1	0.00	7.7	5.04	69.6	9.05	19.2	175.6	Clear	None
11:40	5	200	61.1	0.00	7.66	5.07	66.8	8.95	18.3	173.8	Clear	None
11:45	5	200	61.1	0.00	7.6	5.05	62.8	8.71	18.4	173.7	Clear	None
11:50	5	200	61.1	0.00	7.53	5.06	41.7	8.41	19.1	172.2	Clear	None
11:55	5	200	61.1	0.00	7.52	5.06	38.5	8.4	18.8	171.2	Clear	None
12:00	5	200	61.1	0.00	7.52	5.05	39.1	8.39	18.9	171.1	Clear	None

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

Well Locked at Arrival: yes

Condition of Well: Good

Well Locked at Departure: yes

ft-bmp = feet below measuring point
in. = inches

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	TW-14-06			**Date**	06/07/2021
Project Name/Location	RACER Lansing / Lansing, MI	**Weather(°F)**	75.9 degrees F and Cloudy. The wind is blowing SW at 10.3 mph.				
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	60.96	**Total Depth (ft-bmp)**	86.5	**Water Column(ft)**	25.54	**Gallons in Well**	4.15
MP Elevation		**Pump Intake (ft-bmp)**	84	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	11:35	**Volumes Purged**	0.95	**Sample ID**	TW-14-06_060721	**Sampled by**	Austin Westhuis
Purge Start	10:35	**Gallons Purged**	3.96	**Replicate/ Code No.**	TW-14-06_060721 (DUP-03)		
Purge End	12:01						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	60.96	0.26	7.24	3.06	--	9.61	18.5	138.2	Clear	None
10:45	5	5	200	60.96	0.53	7.22	3.16	--	8.87	21	140.4	Clear	None
10:50	5	10	200	60.96	0.79	7.24	2.67	--	11.18	19.5	142.3	Clear	None
10:55	5	15	200	60.96	1.06	7.26	2.67	--	15.52	16.9	149.4	Clear	None
11:00	5	20	200	60.96	1.32	7.27	2.79	--	14.65	17.4	153.4	Clear	None
11:05	5	25	200	60.96	1.59	7.26	2.24	--	14.95	16.5	155.8	Clear	None
11:10	5	30	200	60.96	1.85	7.28	2.3	--	16.21	16.1	164.6	Clear	None
11:15	5	35	200	60.96	2.11	7.28	2.8	--	14.91	16.2	178.4	Clear	None
11:20	5	40	200	60.96	2.38	7.28	2.51	--	14.19	17.4	177.4	Clear	None
11:25	5	45	200	60.96	2.64	7.28	2.35	--	15.43	16.1	180.6	Clear	None
11:30	5	50	200	60.96	2.91	7.29	1.62	--	15.11	16.8	167	Clear	None
11:35	5	55	200	60.96	3.17	7.28	1.71	--	12.87	16.2	168.7	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	40 mL Glass	6	HCL
Nitrate	250 mL Plastic	2	None
Total Phosphorus and TKN	250 mL Plastic	2	H2SO4

Comments: Well located next to an actively running air sparge transact. Collected sample after one hour of groundwater parameter readings. DUP-03 collected.

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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	TW-15-11			**Date**	06/07/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	75.9 degrees F and Cloudy. The wind is blowing S/SW at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	64.25	**Total Depth (ft-bmp)**	86.9	**Water Column(ft)**	22.65	**Gallons in Well**	3.68
MP Elevation		**Pump Intake (ft-bmp)**	84.4	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	13:00	**Volumes Purged**	1.01	**Sample ID**	TW-15-11_060721	**Sampled by**	Austin Westhuis
Purge Start	12:30	**Gallons Purged**	3.70	**Replicate/ Code No.**			
Purge End	13:23						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	64.25	0.26	7.15	2.97	37.9	12.43	16.3	165.6	Clear	None
12:40	5	5	200	64.25	0.53	7.08	2.97	13.6	12.59	16.1	143.7	Clear	None
12:45	5	10	200	64.25	0.79	7.07	2.97	6.29	12.05	16.2	98	Clear	None
12:50	5	15	200	64.25	1.06	7.07	2.98	4.58	11.95	16.2	92.1	Clear	None
12:55	5	20	200	64.25	1.32	7.07	2.98	4.12	11.9	16.1	89.9	Clear	None
13:00	5	25	200	64.25	1.59	7.07	2.97	3.71	11.85	16.1	83.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8260B SIMS	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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv

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RACER Lansing GW Sampling

Project Number	30075941	**Well ID**	TW-15-12			**Date**	6/2/2021
Project Name/Location	RACER Lansing, MI					**Weather(°F)**	Sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**		**Casing Diameter (in.)**	4	**Well Material**	
Static Water Level (ft-bmp)	58.65	**Total Depth (ft-bmp)**	76.8	**Water Column(ft)**	18.15	**Gallons in Well**	11.8
MP Elevation	NA	**Pump Intake (ft-bmp)**	72	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:30	**Gallons Purged**		**Replicate/ Code No.**		**Evacuation Method**	Bladder
Purge Start:	09:30						
Purge End:	10:30						

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
09:40	0	200	58.75	0.00	7.23	2.7	87.7	9.49	16.9	212.6	Cloudy	None
09:45	5	200	58.75	0.00	7.31	2.7	85.9	9.91	17.1	207.8	Cloudy	None
09:50	5	200	58.75	0.00	7.37	2.69	74.5	9.74	17.4	203.9	Cloudy	None
09:55	5	200	58.75	0.00	7.42	2.68	75.6	8.59	17.9	200.1	Cloudy	None
10:00	5	200	58.75	0.00	7.47	2.69	71	8.52	17.8	196.8	Cloudy	None
10:05	5	200	58.75	0.00	7.49	2.67	80.3	8.59	17.9	195.6	Cloudy	None
10:10	5	200	58.75	0.00	7.5	2.69	78.3	8.58	17.8	194.5	Cloudy	None
10:15	5	200	58.75	0.00	7.51	2.67	84.1	8.54	18.2	193.4	Cloudy	None
10:20	5	200	58.75	0.00	7.52	2.68	81.1	8.61	17.8	191.4	Cloudy	None
10:25	5	200	58.75	0.00	7.52	2.69	82	8.58	17.9	190.4	Cloudy	None

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

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

mS/cm = milliiSiemens per centimeter
NTU = N

mV = millivolts

Groundwater Sampling Form

ARCADIS Design & Consultancy for natural and built assets

Project Number	30075941	**Well ID**	UNK-15			**Date**	06/09/2021
Project Name/Location	RACER Lansing / Lansing, MI		**Weather(°F)**	82.9 degrees F and Partly Cloudy. The wind is blowing at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	**Screen Setting (ft-bmp)**	--	**Casing Diameter (in)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	0.92	**Total Depth (ft-bmp)**	15.65	**Water Column(ft)**	14.73	**Gallons in Well**	2.39
MP Elevation		**Pump Intake (ft-bmp)**	13.15	**Purge Method**	Low-Flow	**Sample Method**	Low-Flow
Sample Time	12:20	**Volumes Purged**	0.88	**Sample ID**	UNK-15_060921	**Sampled by**	Austin Westhuis
Purge Start	11:50	**Gallons Purged**	2.11	**Replicate/ Code No.**			
Purge End	12:25						

Time	Minutes Elapsed	Total Elapsed Minutes	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	0	0	200	1.55	0.26	7.83	0.63	4.62	0.12	15.7	103.1	Clear	None
12:00	5	5	200	1.75	0.53	7.82	0.65	2.14	0.12	15.9	94.2	Clear	None
12:05	5	10	200	1.75	0.79	7.81	0.66	1.77	0.1	16.4	88.2	Clear	None
12:10	5	15	200	1.98	1.06	7.82	0.66	1.62	0.1	16.5	79.2	Clear	None
12:15	5	20	200	2.04	1.32	7.82	0.66	1.5	0.1	16.5	77.2	Clear	None
12:20	5	25	200	2.06	1.59	7.82	0.65	1.44	0.1	16.5	76.3	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250 mL HDPE 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: See figure

Condition of Well: Good condition

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 = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter

mV = milliv