Revitalizing Auto Communities
Environmental Response Trust

February 25, 2021

U.S. EPA Region 5
Remediation and Reuse Branch
Land and Chemicals Division, LU-9J
77 West Jackson Blvd.
Chicago, IL 60604-3590
Attn: Molly Finn

RE: 2020 Groundwater Monitoring Report
RACER Trust Moraine Facilities
Moraine, Ohio

Dear Ms. Finn:

The Revitalizing Auto Communities Environmental Response Trust (RACER Trust) is providing this 2020 Groundwater Monitoring Report for the RACER Trust Moraine Facilities in Moraine, Ohio. This report presents the groundwater monitoring activities conducted to assess the performance of the current corrective measures completed in 2020 at the following facilities located in Moraine, Ohio: former Delphi Harrison Thermal Systems Moraine Plant; former General Motors Powertrain Group, Moraine Engine Plant; and former General Motors Truck Group, Moraine Assembly Plant.

If you have any questions, please contact me at (937) 751-8635.

Sincerely,

Pamela L. Barnett

Pamela L. Barnett, PG
Cleanup Manager (DE, LA, MA, OH, PA, VA)
RACER Trust

cc: M. Finn, U.S. EPA
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2020 Groundwater Monitoring Report

Revitalizing Auto Communities Environmental Response Trust (RACER Trust)

Former Delphi Harrison Thermal Systems, Moraine Plant
Former General Motors Powertrain Group, Moraine Engine Plant
Former General Motors Truck Group, Moraine Assembly Plant
Moraine, Ohio

February 25, 2021

2020 Groundwater Monitoring Report

Revitalizing Auto Communities Environmental Response Trust (RACER Trust)

February 25, 2021

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1 Introduction

This 2020 Groundwater Monitoring Report summarizes the groundwater monitoring activities completed in 2020 at the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) Moraine Facilities (formerly General Motors Corporation [former GM Corporation]) located in Moraine, Ohio (Site; **Figure 1**). The facilities included:

- former Delphi Harrison Thermal Systems Moraine Plant (former Delphi Thermal Moraine)
- former General Motors Powertrain Group, Moraine Engine Plant (former Moraine Engine)
- former General Motors Truck Group, Moraine Assembly Plant (former Moraine Assembly)

Current property owners and parcel boundaries associated with the Site are shown on **Figure 2**.

This report summarizes the 2020 groundwater monitoring program (**Table 1**) and the performance of the ongoing interim measures (**Figure 3**). These interim measures were included in the Interim Measures/Corrective Measures (IM/CM) Report (Arcadis G&M, Inc. 2001) and incorporate the Former Oil House Area interim measures (in-situ remediation of upper aquifer groundwater); the capture zone interim measure (downgradient pumping of the lower aquifer); institutional actions (the Site will remain industrial, groundwater use will be restricted, and vapor intrusion controls are in place); and a groundwater monitoring program. An additional interim measure, Phase 1 Dynamic Groundwater Recirculation (DGR™; Arcadis 2020a), was implemented in 2019 to address off-site vapor intrusion.

The groundwater monitoring for the facilities was conducted in accordance with the Addendum to the Site-Wide Groundwater Monitoring Report for 2016 (Addendum; Arcadis 2017a) and the recommendations in the 2019 Groundwater Monitoring Report (Arcadis 2020b).

1.1 Site Description

The Site has been used for industrial purposes since the property was acquired in the mid-1920s by former GM Corporation. The former Moraine Engine and Moraine Assembly facilities occupy approximately 282 acres, while the adjacent former Delphi Thermal Moraine facility occupies approximately 143 acres (Montgomery County Engineer's Office). The facilities are in the City of Moraine, Montgomery County, southwestern Ohio. A small portion of the Moraine Assembly facility is in the City of Kettering. **Figure 1** presents the location of each facility, property boundaries, and site features.

Frigidaire (a former division of former GM Corporation) produced appliances from the late 1920s until 1979. Former GM Corporation announced the shutdown of all Frigidaire operations in January 1979. During 1980 and 1981, the majority of the former Frigidaire Plant 2 was converted to the former Moraine Engine facility, and the former Frigidaire Plant 3 and the northeast corner of former Frigidaire Plant 2 were converted to the Moraine Assembly facility. Since 1981, former Moraine Engine operations have included the machining, painting (this operation was discontinued in September 1995), and assembly of diesel truck engines. Operations at the former Moraine Engine facility ceased in the fall of 2000. The plant building has undergone decommissioning and demolition, and most of this site has been covered with a parking surface. Former GM Corporation operated a regional haulaway at the location of the former Moraine Engine plant, which was referred to as the Vehicle Distribution Center. Operations at the regional haulaway ceased in December 2008.

Beginning in 1981, former Moraine Assembly operations included the manufacturing, assembly, and painting of small trucks and later sport utility vehicles. Operations at the former Moraine Assembly ceased in December 2008. Currently, an active diesel engine manufacturer, DMAX Ltd. (DMAX), is located north of former Delphi Thermal Moraine, on Lot #5416. DMAX is a joint venture between General Motors and Isuzu. This area was historically associated with the former Moraine Assembly and Engine Plant operations.

Former Delphi Thermal Moraine's major operations, which began in 1941, included the machining and assembly of automotive air conditioning compressors, accumulator dehydrators, and miscellaneous air conditioning valves. Operations at the former Delphi Thermal Moraine Building 14 ceased in September 2003, and the building was decommissioned. Demolition of Building 14 was completed in 2005.

On June 1, 2009, former GM Corporation and certain subsidiaries filed voluntary petitions for relief under Chapter 11 of the Bankruptcy Code. An order was entered approving the sale of substantially all former GM Corporation's assets to a new and independent company (now known as General Motors Company, LLC) under Section 363 of the Bankruptcy Code on June 5, 2009. The sale closed on July 10, 2009. At that time, former GM Corporation changed its name to Motors Liquidation Company (MLC). RACER Trust was established on March 31, 2011 by a federal bankruptcy court to own, manage, remediate, and revitalize the properties from the 2009 former GM Corporation bankruptcy.

On June 30, 2011, RACER Trust sold former Delphi Thermal Moraine (except for the closed South Settling Lagoon), former Moraine Engine Plant, and former Moraine Assembly Plant to Industrial Realty Group Moraine, LLC (IRG). As part of the property transfer, RACER Trust retained environmental liability for these properties. Current Site operations include multi-tenant use for commercial and industrial purposes. **Figure 2** provides details of the established parcels and current owners.

1.2 Groundwater Monitoring Program Objectives

The baseline groundwater sampling event for volatile organic compounds (VOCs) was conducted in September 1999. The next site-wide groundwater sampling event was completed in September and October 2000 and included sample analysis for additional constituents (Appendix IX chlorinated VOCs, cis-1,2-dichloroethence [cis-1,2-DCE], semi-volatile organic compounds [SVOCs], and metals) to narrow down the constituents of concern at the Site. The results from the 1999 baseline event and the 2000 site-wide event confirmed chlorinated VOCs are the constituents of concern and are presented in the IM/CM Report (Arcadis G&M, Inc. 2001). The site-specific VOCs include benzene, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), ethylbenzene, tetrachloroethene (PCE), toluene, 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), vinyl chloride, and xylenes. PCE and TCE are the primary risk drivers for the Site.

Since the baseline groundwater monitoring event, emerging contaminants including 1,4-dioxane (RACER Trust 2015 and 2016; Arcadis, Inc. 2015, 2016a, and 2017b) and poly- and perfluorinated alkyl substances (PFAS) have been evaluated and additional investigation or remediation is not warranted (Arcadis 2019a).

The objectives of groundwater monitoring in 2020 at the Site were as follows:

1. Monitor groundwater quality west of the Miami River near the Miami Shores neighborhood and downgradient of the Site.
2. Monitor the effectiveness of lower aquifer capture (DN-13) downgradient of the property boundary.

3. Monitor the effectiveness of interim measures activities at suspended in-situ reactive zones IRZ-1, IRZ-3 West, IRZ-3 East, and IRZ-4 East.
4. Monitor groundwater quality upgradient and downgradient of the closed North and South Settling Lagoons.
5. Monitor the performance of the upper aquifer Phase 1 DGR™ interim measure.

1.3 Interim Measures

1.3.1 Enhanced Reductive Dechlorination

The reductive dichlorination of chlorinated VOCs can be enhanced by the injection of a carbon source that stimulates activity of indigenous microorganisms. The high carbon loading triggers a succession of microbial species. Initially, aerobic electron acceptors such as oxygen and nitrate are consumed. Then the microbial succession leads to a consortium of species that survive by sulfate reduction, methanogenesis, and other similar metabolic pathways supporting the highly reducing conditions necessary for the dechlorination of PCE, TCE, cis-1,2-DCE, and vinyl chloride. This enhanced reductive dechlorination (ERD) process has been developed at the Site using in-situ reactive zones for the injection of a degradable carbon source (i.e., a dilute solution of molasses and potable water) necessary to develop the desired reducing conditions.

The ERD process was implemented at the Site in 1999 to address impacts at the former Oil House Area and downgradient diffuse plume VOC concentrations at the in-situ reactive zones IRZ-1, IRZ-2, IRZ-3 East, and IRZ-3 West. IRZ-4 East was designed and installed based on the data obtained from the Supplemental Groundwater Investigation completed in 2006. The in-situ reactive zones are shown on **Figure 4**.

Since 2006, the injection frequency at the different reactive zones has been modified or suspended based on VOC concentrations and the organic carbon degradation trend. In 2018, injections were implemented on a quarterly basis. This frequency was continued in the first quarter of 2019 only at IRZ-3 West. The 2018 Groundwater Monitoring Report recommended that active injections be suspended on an interim basis to allow for monitoring of rebound and to prepare groundwater conditions for the operation of the Phase 1 DGR™ system (see **Section 3.3**; Arcadis 2019a). On May 20, 2019, the United States Environmental Protection Agency (U.S. EPA) approved suspension of the injections at the in-situ reactive zones. Carbon source solution injections have not been completed since the first quarter of 2019. Monitoring to evaluate the need for additional injections is ongoing. The results of this evaluation are discussed in **Appendix A**.

The current primary site-specific VOC source area is within groundwater at the former Process Sump Area (PSA) (Arcadis 2012a, 2020c; RACER Trust 2015, 2016,). The Primary Groundwater Source Area Interim Measures Work Plan Addendum (Arcadis 2017c) was submitted to the U.S. EPA and approved (U.S. EPA 2017). This Work Plan Addendum detailed the design basis and methodology for implementation of an ERD pilot test in the PSA. The associated field activities were completed in the fourth quarter of 2017 and first quarter of 2018. The results of this pilot test were submitted to the U.S. EPA (Arcadis 2019b) and ERD is the proposed remedy for the source are (PSA) at the Site.

1.3.2 Phase 1 DGR™

Dynamic Groundwater Recirculation (DGR™) involves hydraulic containment of the dissolved-phase site-specific VOCs near the property boundary at the former South Settling Lagoon in combination with groundwater recirculation to enhance advective flushing by creating the dynamic gradients required to reverse the processes of plume development, with routine optimization to achieve optimal performance. The objective of the Phase 1 DGR™ interim measure is to reduce site-specific VOCs in groundwater within the downgradient Riverview Plat neighborhood (neighborhood) to concentrations below the Maximum Contaminant Levels (MCLs) within 5 years of initiating full-scale operation (**Figure 3**). The direct benefit of addressing site-specific VOCs within the neighborhood is a reduced vapor intrusion risk for structures within the neighborhood that have not provided access for installation of a vapor intrusion mitigation system.

The upper aquifer Phase 1 DGR™ construction activities were completed on October 24, 2019 (Arcadis 2020a). Following an initial shake down period, the system operation began on October 28, 2019 at 09:30. Baseline groundwater samples and hydraulic information were collected during the July 2019 groundwater monitoring event. Performance monitoring groundwater sampling was completed on a semi-annual basis in February and July of 2020. Current performance monitoring data collected in 2020 indicates that the system is functioning as designed with results summarized in **Section 2.5.3** and **Section 3.3**. The system performance will continue to be evaluated and summarized in the forthcoming Semi-Annual Progress Reports and Annual Groundwater Monitoring Reports.

1.3.3 Lower Aquifer Capture

Extraction well DN-13 is a lower aquifer extraction well that is owned and operated by Montgomery County and has been used in a Pump-to-Waste Program since March 1990 in cooperation with former GM Corporation / MLC until March 31, 2011 and continued with RACER Trust. The capture zone interim measure for the lower aquifer consisted of continued pumping of DN-13 in 2020. Samples at the DN-13 invert outfall and well flow rate data are collected monthly as a requirement of the National Pollutant Discharge Elimination System (NPDES) permit, and the results are submitted to the Ohio Environmental Protection Agency (Ohio EPA). Extraction well DN-13 was operational throughout 2020 except for periodic shutdowns related to power failures. Details on well DN-13 operation and maintenance, and a lower aquifer capture analysis are discussed in **Section 3.2**. The location of well DN-13 is shown on **Figure 3**.

2 Groundwater Monitoring Summary

To meet the objectives of the groundwater monitoring program in 2020, the scope of work presented in the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002), the Addendum (Arcadis 2017a), and the 2019 Groundwater Monitoring Report (Arcadis 2020b) were completed. Note that the semi-annual sampling event for monitoring of the in-situ reactive zones (ERD) was not completed due to precautions implemented to minimize exposure associated with COVID-19 in the first half of 2020. Groundwater sampling field data are included as **Appendix B**. The analytical data summary including quality assurance results are included as **Appendix C**.

The 1999 baseline through 2020 groundwater analytical data for the site-specific VOC parameter list are summarized in **Appendix D**. For 2020, the site-specific VOC groundwater data is summarized in **Table 2** of this report. This information is used to assess the effectiveness of the on-going interim measures, monitoring the closed settling lagoons, and monitoring shallow upper aquifer VOC concentrations near the Miami Shores neighborhood. The following sections summarize the data collected, and **Figures 5** and **6** show the upper and lower aquifer monitoring wells that are included in the monitoring program.

2.1 Groundwater Elevation Monitoring

Groundwater levels were measured from July 27 through July 29, 2020 and on August 24, 2020. The measured wells included on-site and off-site monitoring wells located in and around the closed North and South Settling Lagoons as shown on **Figures 7** and **8,** respectively (upper aquifer wells), and in the area of DN-13 as shown on **Figure 9** (lower aquifer wells). Groundwater levels were measured in accordance with procedures defined in the Phase 1 DGR™ Interim Measure Pilot Test Work Plan, Standard Operating Procedure (SOP) #17 (Arcadis 2017d).

2.2 Monthly Groundwater Discharge Monitoring

The NPDES permit was revised in 2012 to include lower aquifer well DN-13 as a separate final outfall to the Great Miami River and remove the north and south retention basins as they were included with the property sold to IRG in 2011. The Ohio EPA approved renewal of NPDES Permit 1IC00008*KD for the internal outfall related to TW-2 and for the DN-13 outfall on December 1, 2017. The permit requires monthly monitoring and reporting for lower aquifer extraction well DN-13.

The historic TW-2 groundwater recovery and treatment system was shut down on July 31, 2012 (Arcadis 2012b). Shutdown monitoring of the groundwater recovery and treatment system continued through 2014 (Arcadis 2013). Current data suggests that continued shutdown of this system is recommended based on the results of groundwater monitoring since the TW-2 system shutdown.

Table 3 summarizes the VOC results for the monthly DN-13 effluent sampling during 2020. The analyses were conducted in accordance with methods specified in the NPDES Permit 1IC00008*KD.

2.3 2020 Groundwater Monitoring Program

In 2020, the following wells were sampled to assess the groundwater monitoring program objectives, as detailed in **Section 1.2**:

- Off-Site Groundwater Monitoring: GM-80, RMW-95, RWM-96, and RMW-97
- Performance Monitoring of DN-13: DN-13, GM-9, GM-15, and GM-20D
- Performance Monitoring of IRZs:
  - RZ-3 West: GM-6, GM-8, and GM-32
  - Inactive IRZ-1: GM-23, GM-27, GM-28R, and GM-29
  - Inactive IRZ-3 East: GM-2 and GM-21
  - Inactive IRZ-4 East: GM-19S
- Closed North and South Settling Lagoons:
  - Closed North Settling Lagoon: HR-4, W-2-N, W-3-N, and W-4-N
  - Closed South Settling Lagoon: HR-1, HR-17, W-2-S, W-3-S, and W-4-S
- Performance monitoring of the Phase 1 DGR™ interim measure: HR-16, GM-16, GM-47 through GM-52, GM-63, GM-64, RMW-91 through RMW-94, RMW-98 through RMW-102, and WSU-23. Note that wells used for the closed South Settling Lagoon monitoring (HR-17, W-2-S, W-3-S, and W-4-S) are also used for monitoring of Phase 1 DGR™.
- Groundwater Monitoring Upgradient of IRZ-3 West: GM-35, GM-36, GM-37, GM-38, WEST, and EAST.

A summary of the 2020 groundwater monitoring activities, including the number of monitoring wells and analytical parameters, is presented on **Table 1**. Well construction data for the wells used in the program are presented in **Table 4**.

Groundwater samples were collected from the specified wells using the low-flow methodology and following procedures outlined in SOP #14 (Arcadis 2017c). Field parameters including pH, specific conductance, temperature, oxidation/reduction potential, and dissolved oxygen were measured during purging of each well using a multi-parameter groundwater quality meter with flow-through cell (**Appendix B**). One groundwater sample from well DN-13 was collected through the sampling valve.

The groundwater samples were collected and managed under standard chain-of-custody procedures and validated in accordance with the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002) and as presented in the draft Amended Quality Assurance Project Plan (Arcadis 2011). Analytical results are presented and discussed in **Section 2.5.3**.

2.4 Laboratory Analytical Methods

Groundwater samples were analyzed for the site-specific VOC parameter list using Method 8260B. Select groundwater samples from upper aquifer monitoring wells collected during the groundwater monitoring event were also analyzed for the following biogeochemical indicator parameters: TOC and dissolved gases (ethane, ethene, and methane). **Table 1** lists specific field, laboratory, and biogeochemical indicator parameters and laboratory analytical methods. The groundwater samples were submitted to Eurofins TestAmerica Laboratories, Inc. (TestAmerica) in North Canton, Ohio. Samples for analysis for ethene, ethane, and methane were submitted to Pace Analytical Gulf Coast, in Baton Rouge, Louisiana.

2.5 Groundwater Monitoring Program Results

2.5.1 Groundwater Elevation Monitoring

As part of the 2020 groundwater monitoring program, a reduced set of groundwater levels were measured to verify and determine groundwater flow directions and vertical hydraulic gradients. The reduced set was used to target specific areas for focus within the upper and lower aquifers related to the closed North and South Settling Lagoons, Phase 1 DGR™, and DN-13. Groundwater elevation monitoring events were completed from July 27 through July 29, 2020 and August 24, 2020. The groundwater level measurement data are presented on **Table 5**.

2.5.1.1 Upper Aquifer

Focused potentiometric surface maps were generated for the closed North and South Settling Lagoon areas (**Figures 7** and **8**, respectively). For the closed North Settling Lagoon, the general southwestern groundwater flow conditions for 2020 are consistent with historical groundwater flow conditions documented in the previous groundwater monitoring reports. The closed South Settling Lagoon correlates with the Phase 1 DGR™ operational area. The potentiometric surface in this area provides an understanding of groundwater flow during system operation, demonstrating how groundwater recirculation affects groundwater flow. Groundwater flow for the upper aquifer is generally from northeast to southwest with induced hydraulic gradient control in the Phase 1 DGR™ area, where radial flow towards the extraction wells with overlapping cones of depression and radial flow out of the injection wells into the upper aquifer. The individual extraction and injection well flow rates are posted for the system during the data collection (**Figure 8**).

Using the range in hydraulic conductivity values measured for the sand and gravel facies of the upper aquifer (180 to 3,500 feet per day [ft/day]), long-term site-wide horizontal hydraulic gradient of 4.7 x 10^{-4} feet per foot (ft/ft), and effective porosity of 10 percent (%), the estimated advective groundwater velocity ranges from 0.8 to 16 ft/day for most of the upper aquifer (Arcadis 2012a). This ambient advective groundwater velocity estimate does not apply to the Phase 1 DGR™ area under operation with influenced hydraulic gradients.

2.5.1.2 Lower Aquifer

A potentiometric surface map was generated for the area around lower aquifer extraction well DN-13 (**Figure 9**). Groundwater flow for the lower aquifer is generally from northeast to southwest towards pumping well DN-13. An estimated cone of depression surrounds pumping well DN-13 as indicated by influence of the surrounding monitoring wells (**Figure 9**). Hydraulic capture of lower aquifer groundwater by DN-13 is discussed further in

Section 3.2. The general groundwater flow conditions for 2020 are consistent with historical groundwater flow conditions, with DN-13 in operation.

2.5.2 Vertical Hydraulic Gradients

Vertical hydraulic gradients between the upper aquifer and the lower aquifer and between the shallow portion of the upper aquifer to the deep portion of the upper aquifer were calculated for the groundwater elevation data collected on July 27, 2020 within the vicinity of DN-13 and in the Phase 1 DGR™ system extraction well area, respectively. A total of four pairs of upper and lower aquifer wells were used in the vicinity of DN-13, and one pair of upper aquifer wells were used in the vicinity of the Phase 1 DGR™ extraction wells (**Table 6**). Vertical gradients were calculated using the following equation:

$$I_V = \frac{h_{upper} - h_{lower}}{D_v}$$

Where

I_v = vertical hydraulic gradient (ft/ft)

h_{upper} = groundwater elevation in upper aquifer monitoring well (feet above mean sea level [ft AMSL])

h_{lower} = groundwater elevation in lower aquifer monitoring well (ft AMSL)

D_v = distance between midpoint of lower screen and midpoint of saturated section of upper screen (ft)

Vertical hydraulic gradients were downward ranging between 5.0 x 10^{-3} ft/ft to 1.1 x 10^{-2} ft/ft in the area of DN-13. The vertical hydraulic gradient in the area of the Phase 1 DGR™ system extraction wells was also downward at a magnitude of 6.7 x 10^{-3} ft/ft (**Table 6**).

2.5.3 Groundwater Monitoring Analytical Results

Groundwater was sampled to evaluate the presence of site-specific VOCs based on the groundwater monitoring objectives detailed in **Section 1.2**. **Tables 2** and **3** and **Appendix C** provide the groundwater results for 2020. The 1999 baseline through 2020 groundwater quality data for the site-specific VOC parameter list are provided in tables in **Appendix D**. The isoconcentration figures for the upper and lower aquifers were updated with the 2020 concentrations for TCE and PCE and are provided as **Figures 10** through **13**. Note that the isoconcentration maps were generated using data collected prior to 2020 as the complete well network for the Site is not sampled on an annual basis. The legend on each figure clarifies how data collected prior to 2013 is differentiated from data collected from 2013 through 2019 and current data. The pre-2013 data was differentiated from 2013 – 2019 historic data as much of it is dated and associated with baseline groundwater sampling. While this data is relatively old, it was still useful in interpretations for development of the isoconcentration maps.

2.5.3.1 Off-Site Groundwater Monitoring

Shallow upper aquifer monitoring wells that are upgradient of the Miami Shores neighborhood (GM-80, RMW-95, RWM-96, and RMW-97) were sampled in 2020. The PCE concentration at two locations exceeded the MCL of 5.0 micrograms per liter (µg/L): GM-80 and RMW-95 (12 µg/L and 8.4 µg/L, respectively). The other constituents were below MCLs or below reporting limits. The groundwater data from the Miami Shores monitoring wells were screened against the Vapor Intrusion Screening Levels (VISLs; **Table 7**), and there were no exceedances.

2.5.3.2 Performance Monitoring of DN-13

The off-site, lower aquifer groundwater quality downgradient of the Site was evaluated with lower aquifer wells DN-13, GM-9, GM-15, and GM-20D. TCE concentrations exceeded the MCL of 5.0 µg/L in DN-13 (5.6 µg/L) and GM-9 (13 µg/L). The other constituents were detected at relatively low concentrations or below reporting limits. Groundwater capture by extraction well DN-13 is discussed in **Section 3.2**.

2.5.3.3 IRZ Performance Monitoring

As described in **Section 1.3.1**, carbon solution injections were not completed in 2020. Continued effects from past injections based on the operation of the in-situ reactive zones was monitored through the collection of field parameter measurements and laboratory analyses of biogeochemical indicator parameters and site-specific VOCs, according to the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002) and revisions in the Site-Wide Groundwater Monitoring Report for 2009 (Arcadis 2010). Groundwater concentration trends for the in-situ reactive zone performance monitoring wells are presented in **Figures 14** through **17**. **Appendix A** includes a detailed summary of the in-situ reactive zone performance monitoring. Based on the evaluation within **Appendix A**, the following observations and conclusions can be made:

- Upper aquifer conditions were strongly reducing within and downgradient of the in-situ reactive zones due to the previous injections of a carbon source (i.e., molasses), as evidenced by the presence of dissolved phase methane.
- The target compounds (PCE and TCE) were largely reduced to daughter products (cis-1,2-DCE and vinyl chloride) and ultimately to end products (ethene and ethane) based on the VOC and light hydrocarbon data.
- No significant changes in anaerobic conditions (e.g., the concentration of methane) or treatment effectiveness (e.g., sustained reductions in site-specific VOC concentrations with the observation of elevated concentrations of ethene and/or ethane) were observed as a result of the suspension of injections after the first quarter of 2019.

2.5.3.4 Monitoring of Closed Settling Lagoons

Groundwater quality is monitored upgradient and downgradient of the closed North and South Settling Lagoons as described in **Section 2.3**. Upgradient monitoring wells used are HR-4 for the closed North Settling Lagoon and HR-17 for the closed South Settling Lagoon (**Figure 3**). Wells downgradient of the closed North (W-2-N, W-3-N, and W-4-N) and South (W-2-S, W-3-S, and W-4-S) Settling Lagoons (closed through in-situ solidification and installation of a cover system in 2001 after the 1999 baseline sampling event) were sampled in 2020. The monitoring of the closed North and South Settling Lagoons showed that the closed lagoons do not appear to be contributing constituents to existing groundwater concentrations in the area. The 2020 Supplementary Annual Report provide additional details associated with the evaluations completed for the closed North and South Settling Lagoons and is provided as **Appendix E**.

2.5.3.5 Phase 1 DGR™ Performance Monitoring

Baseline groundwater samples were collected in July 2019 from several monitoring wells upgradient, side-gradient, and downgradient of the Phase 1 DGR™ system to establish baseline groundwater concentrations for site-specific VOCs prior to system startup. The Phase 1 DGR™ system began full-scale operation in October 2019 and has continued operation throughout 2020 with periodic shutdowns for routine maintenance and repair

activities. Performance monitoring was completed in 2020 on a semi-annual basis in February and July. The monitoring network sampled in 2020 includes wells located in four groups or areas of the site.

The general concentration trends for TCE and PCE in the Phase 1 DGR™ performance monitoring wells are discussed below in relation to the four groups with supporting concentration charts provided on **Figure 18**. Note that that concentration charts for TCE and PCE shown on **Figure 18** are provided for concentrations over the past 5 years (2016 through 2020), if available, have the respective VISL lines for TCE (9.9 µg/L) and PCE (122 µg/L), and respective monitoring well screen interval for the shallow portion of the upper aquifer (WT – water table) and deeper portion of the upper aquifer (TT – top of till).

- Upgradient and side-gradient monitoring wells: GM-19S, HR-16, HR-17, RMW-91, and RMW-92
  - PCE concentrations appear consistent to decreasing. Monitoring wells GM-19S, HR-16, and HR-17 exhibited consistent concentrations of PCE (1.5 µg/L, 0.42 J, and 160 µg/L, respectively for the July 2020 sampling event). Monitoring wells RMW-91 and RMW-92 exhibited decreasing concentrations of PCE from July 2019 (130 µg/L and 57 µg/L, respectively) to July 2020 (83 µg/L and 50 µg/L, respectively).
  - TCE concentrations at all upgradient and side-gradient monitoring wells appear to be consistent to slightly decreasing. The concentrations of TCE observed at RMW-91 in 2020 were 59 µg/L (February) and 53 µg/L (July). All other TCE concentrations for this group of wells were relatively low or non-detect.
  - At GM-19S, a side-gradient well located east of Dryden Road and downgradient of the IRZ-4 East injection wells, detected concentrations of vinyl chloride were observed at 2.1 µg/L and 2.9 µg/L for the February and July 2020 sampling events, respectively. This is consistent with the lower PCE and TCE concentrations at this well as vinyl chloride is a daughter product of the enhanced degradation process in response to the carbon source injections in the IRZs.
- Phase I DGR™ area monitoring wells: W-2-S, W-3-S, W-4-S, RMW-93, and RMW-94
  - In 2020, PCE concentrations were variable by location. At W-2-S, located on the western edge of the closed South Settling Lagoon, the concentrations of PCE have been variable since the 2019 system startup. During the baseline sampling event in July 2019, the PCE concentration peaked at 20 µg/L and in February 2020 decreased to 1.0 µg/L, then increased to 6.3 µg/L in July 2020. At monitoring well W-3-S, located just west of the Phase 1 DGR™ injection wells, PCE increased to a peak concentration in February 2020 of 140 µg/L and decreased to 110 µg/L in July 2020. At W-4-S, RMW-93, and RMW-94, located on the southern border of the closed South Settling Lagoon, concentrations are decreasing, with minimum observed PCE concentrations in July 2020 with at concentrations of 37 µg/L, 22 µg/L, and 27 µg/L, respectively. Note that the current PCE concentrations detected are below the VISL for the immediate system area wells.
  - In 2020, TCE concentrations appeared to be consistent or decreasing. At monitoring well W-2-S, the concentrations of TCE were relatively low at 5.9 µg/L in February 2020 and 3.6 µg/L in July 2020, and at RMW-94, TCE concentrations were low at 0.39 J µg/L in February 2020 and non-detect in July 2020. Concentrations of TCE appear to be decreasing and at low concentrations at monitoring wells W-3-S, W-4-S, and RMW-93. W-3-S exhibited concentrations of 1.1 µg/L and 2.0 µg/L in February and July 2020, respectively. Note that the current TCE concentrations detected are below the VISL for the immediate system area wells.

- Riverview Plat Neighborhood downgradient monitoring wells: GM-47, GM-50, GM-63, GM-64, RMW-98, RMW-99, RMW-100, RMW-101, and WSU-23
  - PCE concentrations were detected at all wells during the February and July 2020 sampling events except RMW-100. Detected concentrations of PCE ranged from 0.35 J µg/L at RMW-101 to 62 µg/L at RMW-98 in February 2020. Detected concentrations of PCE ranged from 0.36 J µg/L at well RMW-101 to 73 µg/L at WSU-23 in July 2020. The concentrations of PCE are more prevalent on the western edge of the Riverview Plat Neighborhood; however, all are below the VISL.
  - TCE concentrations are decreasing at monitoring wells GM-64, RMW-98, RMW-99, and RMW-101. At monitoring wells GM-47, GM-50, GM-63, and WSU-23, the concentrations of TCE are consistent with past concentrations. TCE was not detected at RMW-100.
  - Except for the concentration of TCE at GM-47 in July 2020 (10 µg/L), all the Riverview Plat neighborhood monitoring wells has concentrations of TCE that were below the VISL. Monitoring well GM-47 is screened within the deeper portion of the upper aquifer. The shallower paired monitoring well GM-50 exhibited a low TCE concentration of 0.75 J µg/L for the July 2020 sampling event. Note that the shallower paired wells are more appropriate for evaluating the potential for vapor intrusion. In general, the monitoring wells that exhibit relatively higher TCE concentrations are screened at deeper intervals within the upper aquifer.
- Downgradient of the Riverview Plat Neighborhood monitoring wells: GM-16, GM-48, GM-49, GM-51, GM-52, and RMW-102
  - PCE concentrations ranged from non-detect at RMW-102 to 26 µg/L at GM-51 for the February 2020 sampling event and 12 µg/L at GM-16 and RMW-102 in July 2020. The PCE concentrations were decreasing at monitoring wells GM-16 and GM-48 in 2020. The PCE concentrations were consistent at monitoring wells GM-49, GM-51, and GM-52 in 2020. At RMW-102, the concentration of PCE was variable from non-detect in February of 2020 to 12 µg/L in July 2020. PCE concentrations in the wells downgradient of the Riverview Plat neighborhood were below the VISL in 2020.
  - TCE concentrations ranged from 0.63 J µg/L at RMW-102 to 13 µg/L at GM-48 in February 2020 and from 0.37 µg/L at RMW-102 to 28 µg/L at GM-49 in July 2020. TCE concentrations are slightly decreasing at wells GM-16, GM-48, GM-49, and GM-51. The TCE concentrations are consistent at RMW-102 and GM-52. The concentrations of TCE in 2020 exceeded the VISL (9.9 µg/L) at wells GM-48 and GM-49, both screened deeper in the upper aquifer and both shallower wells in the nested pairs were relatively low and less than the VISL.

Groundwater samples for the performance monitoring of the Phase 1 DGR™ system will be collected on a semi-annual basis in 2021 to confirm and verify system performance. Continued data collection will be evaluated and reported in forthcoming Semi-Annual Progress Reports and annual Groundwater Monitoring Reports.

2.5.3.6 Groundwater Monitoring Upgradient of IRZ-3 West

Monitoring wells in the area north of IRZ-3 West were sampled in 2020 to evaluate site-specific VOC concentrations upgradient of the ERD treatment area. Monitoring wells GM-35, GM-36, GM-37, GM-38, WEST, and EAST were sample in July 2020 for site-specific VOCs. PCE concentrations exceeded the MCL of 5.0 µg/L in all monitoring wells. At monitoring well GM-35, the TCE concentration was 150 µg/L and detections of TCE at all other monitoring wells were relatively low and below the MCL. GM-35 also exhibited a concentration of cis-1,2-DCE that exceeded the MCL (92 µg/L). Other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

3 Interim Measure Performance

3.1 In-Situ Reactive Zone Performance Results

A detailed assessment of the continued effectiveness of the suspended reactive zones and the results of this monitoring are presented in **Appendix A** and summarized below.

- Conditions for reductive dechlorination continued to be observed in the reduction of chlorinated VOC concentrations in groundwater.
- As optimal, upper aquifer conditions were strongly reducing within and downgradient of the suspended in-situ reactive zones due to the past injections of carbohydrate, as evidenced by the presence of methane at concentrations above background data.
- The target compounds (PCE and TCE) were reduced to daughter products (cis-1,2-DCE and vinyl chloride) and ultimately to end products (ethene and ethane) based on the chlorinated VOC and light hydrocarbon data (ethene and ethane).
- No significant change in anaerobic conditions (e.g., the concentration of methane) or treatment effectiveness (e.g., sustained reductions in chlorinated VOC concentrations with the observation of elevated ethene and/or ethane) were observed.
- Reducing conditions are expected to continue even with injections suspended.
- Monitoring well GM-2 exhibited a peak concentration of PCE in 2020 (30 µg/L). Monitoring well GM-2 and additional monitoring wells located downgradient of GM-2 (GM-17 and WSU-24) will be sampled in 2021 to further evaluate the PCE concentrations in groundwater in this area.

3.2 Capture Zone Performance Results

Pumping well DN-13 is utilized to capture site-specific VOCs in lower aquifer groundwater. Past evaluations to determine the effectiveness of DN-13 in this regard used several lines of evidence following the general procedures outlined in the U.S. EPA guidance, A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems (U.S. EPA 2008). With the robust capture analyses that followed U.S. EPA guidance over the past 8 years, the capture hydraulics in relation to DN-13 operation have been established. It was recommended that the capture analysis and evaluation of DN-13 data in relative to hydraulic control be reduced to every 5 years with continued reporting on operation and maintenance to maintain a flow rate for capture in the 2019 Groundwater Monitoring Report (Arcadis 2020b). Specifically, removing the need to evaluate the hydraulics in relation to horizontal hydraulic gradients, statistical analysis of VOC concentrations, calculations, and inferred capture zones. The collection of groundwater levels and annual monitoring of local lower aquifer site-specific VOC concentrations to confirm overall conditions was maintained.

The lower aquifer DN-13 area groundwater elevations (**Table 5**), current vertical hydraulic gradients (**Table 6**), lower aquifer vicinity monitoring well site-specific VOC concentrations, and DN-13 operational data (e.g., pumping rates) were used to compare to past evaluations to confirm conditions as outlined below:

- The approximate run-time average flow rate (pump in operation) for DN-13 in 2020 was approximately 843 gallons per minute (gpm) or 1.21 million gallons per day (MGD), while the average period (daily) rate (total flow volume averaged over the entire year – including downtime) for 2020 was approximately 820 gpm (1.18 MGD). Extraction well DN-13 was operational for 99% of 2020 with a minor shutdown likely related to a power

outage in December 2020. **Appendix F** provides supporting details for DN-13 operation and maintenance and includes charts.

- Using the operational data and considering the consistent site-specific VOC plume width as shown in **Figures 12** and **13**, the average daily flow rate of 820 gpm exceeds the most conservative calculated groundwater flow rate required to capture the plume at 573 gpm (Arcadis 2020b). Therefore, even after incorporating an overly conservative set of parameters as presented in the 2019 Groundwater Monitoring Report, the current operational flow rate of DN-13 is sufficient to capture the lower aquifer plume width.
- Groundwater elevation contours (i.e., potentiometric surface map) for the lower aquifer in the DN-13 area are presented on **Figure 9** and indicate that groundwater generally flows in a northeast to southwest direction with hydraulic influence by DN-13 pumping.
- Vertical hydraulic gradients were calculated from available upper/lower aquifer well pairs within the vicinity of DN-13 including GM-10/GM-9, GM-16/GM-15, GM-18/GM-13, and GM-17/GM-11. The calculated vertical hydraulic gradients shown in **Table 6** indicate that a downward (negative) gradient is present within the vicinity of DN-13. The magnitude of downward vertical hydraulic gradients in the vicinity of DN-13 in 2020 are greater than those on-site (outside immediate area of influence) in previous years.
- The concentration of PCE in July 2020 was non-detect in monitoring wells GM-9 and GM-15 (side-gradient to DN-13), which is consistent with historical concentrations. The concentration of PCE was 1.2 µg/L at DN-13, consistent with the past five years. At GM-20D, the PCE concentration was 3.1 µg/L, which is relatively low, however this is a peak concentration for PCE at this monitoring well.
- The concentrations of TCE at DN-13 and GM-15 were 5.6 µg/L and 4.5 µg/L, respectively, which are consistent with the 2019 sample results and appear to be on a decreasing trend. The concentration of TCE in GM-9 was 13 µg/L in 2020, which is higher than the 2019 concentration (6.0 µg/L), however the overall trend at this monitoring well appears to be consistent to decreasing since the 2013 concentration of 19 µg/L. At GM-20D, the concentration of TCE was non-detect (<1.0 µg/L).

The data above indicate that sufficient hydraulic capture within the lower aquifer was achieved.

3.3 Phase 1 DGR™ Performance Results

Data collected from the Phase 1 DGR™ interim measure (e.g., flow rates, groundwater levels, and influent/mid-stream sampling) and area groundwater monitoring (e.g., sampling and groundwater levels) were used to evaluate system performance. Overall, the Phase 1 DGR™ system is operating as designed. System operational charts for 2020 are presented in **Appendix G**.

The target Phase 1 DGR™ system extraction flow rate was 300 gpm (100 gpm from each of the three extraction wells EW-1, EW-2, EW-3; **Figure 3**). The average total extraction flow rate for 2020 was approximately 253 gpm and includes downtime due to periodic maintenance activities (**Appendix G**). The average total flow rate for 2020 excluding the downtime was approximately 277 gpm. Extraction wells EW-1 and EW-2 are performing as expected. The drawdown at extraction well EW-3 increased in November 2019, and the flow rate was reduced from approximately 100 gpm to 75 gpm to compensate for the decreased performance. Extraction well EW-3 was re-developed from June through July 2020 to improve the overall performance of the well. The flow rate average post-development was 99 gpm.

Water-levels in the injection wells (IW-1 through IW-3) indicate satisfactory injectability. A decrease in performance was observed at IW-4 in December 2019. Redevelopment of IW-4 was completed from June through July 2020 which brought it back to the design capacity.

Groundwater levels collected at monitoring wells within the upper aquifer in the area of the Phase I DGR™ system are used to assess the operational hydraulic influence. As discussed in **Section 2.5.1.1**, the groundwater flow for the upper aquifer is generally from northeast to southwest with induced hydraulic gradient control in the Phase 1 DGR™ area (**Figure 8**). The extraction well pumping demonstrates radial flow towards the extraction wells with overlapping cones of depression and radial flow out of the injection wells into the upper aquifer. Additionally, the vertical hydraulic gradient from the shallow portion of the upper aquifer to the deeper portion of the upper aquifer demonstrates an induced downward vertical hydraulic gradient in the vicinity of the extraction wells (see **Section 2.5.2** and **Table 6**).

Groundwater concentration data for groundwater monitoring wells in the Phase 1 DGR™ area demonstrates decreases in site-specific VOC concentrations downgradient and local to the injection wells (see **Section 2.5.3.5** and **Figure 18**). In addition, all PCE and TCE concentrations downgradient within the Riverview Plat neighborhood in the shallow portion of the upper aquifer are below the respective VISLs (**Figures 10** and **11**). Consequently, these data along with the groundwater levels presented above suggest that the Phase 1 DGR™ interim measure is sufficiently maintaining hydraulic capture of the upper aquifer plume and decreasing the site-specific VOC concentrations downgradient with the treated water injection.

Groundwater samples for the performance monitoring of the Phase 1 DGR™ system will be collected on a semi-annual basis throughout 2021 to confirm and verify system performance. Groundwater level data will continue to be collected throughout 2021. Continued data collected and evaluations will be reported in forthcoming Semi-Annual Progress Reports and Groundwater Monitoring Reports.

4 Corrective Action Completion Strategy

Updated Corrective Measures Objectives (CMOs) to address site-specific VOCs in groundwater were proposed in the CMP Addendum (Arcadis 2020c) and the following timeframes apply:

- Short term – The CMO should be demonstrated approximately 1 year from the finalization of the Statement of Basis.
- Intermediate – The CMO should be demonstrated approximately 2 to 5 years from the finalization of the Statement of Basis.
- Long term – The CMO should be demonstrated at a time that is greater than 5 years from the finalization of the Statement of Basis.

The CMOs are provided in the following subsections.

4.1 Corrective Measures Objectives

4.1.1 On-Site Upper Aquifer Groundwater

4.1.1.1 Short Term

- Establish and maintain the Groundwater Environmental Indicator (i.e., groundwater migration under control – CA750)
- Prevent exposure to concentrations of site-specific VOCs in on-site groundwater exceeding MCLs
- Initiate source area treatment in the former PSA

4.1.1.2 Intermediate

- Maintain the Groundwater Environmental Indicator
- Prevent exposure to concentrations of site-specific VOCs in on-site groundwater exceeding MCLs
- Continue source area treatment in the former PSA

4.1.1.3 Long Term

- Reduce source area concentrations of site-specific VOCs in the former PSA in order to attain groundwater concentrations below residential VISLs for groundwater at property boundary
- Prevent exposure to concentrations of site-specific VOCs in on-site groundwater exceeding MCLs
- Prevent unacceptable vapor intrusion exposure until concentrations of site-specific VOCs in groundwater are below the industrial VISLs for groundwater throughout the site

4.1.2 Off-Site Upper Aquifer Groundwater

4.1.2.1 Short Term

- Prevent exposure to concentrations of site-specific VOCs in off-site groundwater exceeding MCLs / residential VISLs
- Demonstrate the site-specific VOC plume is delineated and stable and achieves the Groundwater Environmental Indicator

4.1.2.2 Intermediate

- Prevent exposure to concentrations of site-specific VOCs in off-site groundwater exceeding MCLs / residential VISLs
- Attain concentrations of site-specific VOCs in groundwater below MCLs / residential VISLs throughout off-site groundwater plume

4.1.2.3 Long Term

- Prevent exposure to concentrations of site-specific VOCs in off-site groundwater exceeding MCLs / residential VISLs
- Attain concentrations of site-specific VOCs in groundwater below MCLs / residential VISLs throughout off-site groundwater plume

4.1.3 On-Site Lower Aquifer Groundwater

4.1.3.1 Short Term and Intermediate

- Prevent drinking water and process water exposure to concentrations of site-specific VOCs exceeding MCLs

4.1.3.2 Long Term

- Demonstrate concentration reduction in site-specific VOCs beneath the source area
- Prevent drinking water and process water exposure to concentrations of site-specific VOCs exceeding MCLs
- Meet and maintain MCLs for site-specific VOCs at the property boundary
- Off-Site Lower Aquifer Groundwater

4.1.3.3 Short Term

- Prevent off-site drinking water exposure to concentrations of site-specific VOCs exceeding MCLs

4.1.3.4 Intermediate

- Prevent off-site drinking water exposure to concentrations of site-specific VOCs exceeding MCLs
- Demonstrate the site-specific VOC groundwater plume is delineated and outside of drinking water well-fields

4.1.3.5 Long Term

- Demonstrate the site-specific VOC groundwater plume is delineated and stable and achieves the Groundwater Environmental Indicator
- Attain concentrations of site-specific VOCs in groundwater below MCLs throughout off-site groundwater plume

4.2 Results

Current site-specific VOC groundwater distribution within the upper aquifer above MCLs is migrating downgradient (southwest) beyond the property boundary west of Dryden Road. Groundwater reducing conditions induced by operation of in-situ reactive zones continue to provide effective treatment within the former Oil House area and downgradient east of Dryden Road. Performance monitoring of Phase 1 DGR™ shows satisfactory performance with the primary objective to improve groundwater quality downgradient within the Riverview Plat neighborhood within 5 years. For the lower aquifer, extraction well DN-13 operational data in 2020 indicates sufficient capture exists to mitigate and control the migration of lower aquifer site-specific VOCs.

Many of the short term CMOs have been achieved through operation of interim measures and institutional controls. Based on communications with the U.S. EPA, the Statement of Basis is expected to be finalized in 2021 which will allow for source remedy implementation to be initiated and continued progress toward achieving the CMOs for the Site.

5 Conclusions and Recommendations

This groundwater monitoring report presents the groundwater monitoring activities completed in 2020 at the RACER Trust Moraine Facilities located in Moraine, Ohio. These activities were completed to meet the five objectives presented in **Section 1.2**. Compliance with these objectives is presented for the off-site groundwater monitoring activities, interim measures, closed settling lagoons, and on-going groundwater monitoring in the following sections.

5.1 Off-Site Groundwater Monitoring

Groundwater samples were collected from four upper aquifer monitoring wells (RMW-95, RMW-96, RMW-97, and GM-80) screened at the water table just upgradient of the Miami Shores neighborhood. The groundwater site-specific VOC data were screened against the applicable VISLs (**Table 7**). The groundwater analytical results that represent conditions closest to the receptor (i.e., residential properties) did not exceed the VISLs. Results from this screening assessment indicate that groundwater concentrations of site-specific VOCs do not present an unacceptable vapor intrusion risk in the Miami Shores neighborhood. Groundwater monitoring will continue in 2021 for the four off-site upper aquifer monitoring wells with two additional upper aquifer monitoring wells GM-18 and GM-79. The additional sampling will be used to verify current groundwater conditions in the distal toe of the plume and deeper portion of the upper aquifer.

5.2 Interim Measures Performance

The approach for RACER Trust in achieving its corrective action goals for the former Moraine Facilities is based on a combination of interim measures (in-situ treatment, hydraulic control, and DGR™) designed to reduce existing plume concentrations thereby achieving plume reduction and migration control. Concentrations of site-specific VOCs in upper aquifer monitoring wells immediately downgradient of the Site to the southwest, as well as concentrations in lower aquifer wells off-site remain above MCLs. However, concentrations of site-specific VOCs within the shallow portion of the upper aquifer off-site are below the respective VISLs. The active interim measures are operating per the design objectives, and the proposed site-wide remedy will still be required to achieve the CMOs.

5.2.1 In-Situ Treatment

Groundwater quality monitoring at and downgradient of the reactive zones indicates that this in-situ treatment program has been effective at reducing chlorinated VOC concentrations in groundwater via anaerobic reductive dechlorination. As observed during the 2020 monitoring, the upper aquifer conditions in the areas downgradient of the in-situ reactive zones have been converted to strongly reducing conditions through the injection of a carbon source, as evidenced by the presence of methane at concentrations above baseline data and further supported qualitatively with field parameter data (e.g., low dissolved oxygen and oxidation-reduction potential). Further, the VOC results indicate that the target compounds (PCE and TCE) have been effectively reduced to daughter products (cis-1,2-DCE and vinyl chloride) and ultimately to ethene and ethane.

In general, the process of ERD has been successful in achieving reduction of chlorinated VOC concentrations downgradient of the source area. Previously, TOC data collected from the active in-situ reactive zones at the site has indicated that an injection frequency of once every 6 to 13 months may be appropriate to sustain appropriate

substrate concentrations to support ongoing reductive dechlorination. However, injections have been suspended. This suspension will allow for: a) further assessment of TOC longevity within the site in-situ reactive zones; b) initiation of redox restoration process that can support burn out of the active in-situ reactive zones and oxidation of reduced metals (e.g., iron and manganese) that may complicate ex-situ treatment; and c) an evaluation of residual VOC concentrations in key performance monitoring wells following suspension of the injection activities. It should be noted that the interim suspension of the in-situ reactive zone injections may be modified based on changes in site-specific VOC concentrations (i.e., increases) that may prompt continuation of injection activities.

The 2021 in-situ reactive zone performance monitoring program will be similar to the 2020 program for IRZ-3 East, IRZ-3 West, and IRZ-4 West, with the addition of monitoring wells GM-17 and WSU-24 to further characterize the concentrations of PCE observed at monitoring well GM-2 in 2020. In addition, IRZ-1 monitoring wells (GM-23, GM-27, GM-8R, and GM-29) will not be sampled in 2021 as this area is located well within the boundaries of the Site, has had a long history of sampling data analysis, and concentrations of site-specific VOCs appear to be consistent from year to year. The frequency of the monitoring events will be on an annual basis. The data will be reviewed annually to determine if there is a significant rebound in site-specific VOC concentrations to the extent that the conceptual design of the diffuse groundwater plume treatment system would significantly change without the interim in-situ reactive zone program. If concentrations increase to the extent that changes to the remedial design for the diffuse plume become likely, the in-situ reactive zone program will resume at those specific in-situ reactive zones. If the site-specific VOC data indicate an immaterial effect on groundwater quality, the in-situ reactive zone program will remain suspended. In-situ reactive zone performance monitoring activities, conclusions, and recommendations will be summarized in the 2021 Groundwater Monitoring Report.

5.2.2 Hydraulic Capture

Groundwater elevation monitoring, vertical hydraulic gradients, extraction well DN-13 operation data, and lower aquifer site-specific VOC concentrations indicate that extraction well DN-13 continues to be effective at maintaining capture in the lower aquifer. Based on the continued effective performance and proactive operation and maintenance of the extraction well DN-13 during 2020, the current pumping program at DN-13 is effective and will continue to be implemented in 2021. A robust capture analysis will be completed in 4 years in 2025 per the recommendations presented in the 2019 report (Arcadis 2020b). Collection of groundwater levels, flow rate, and monitoring of local lower aquifer site-specific VOC concentrations will be maintained on an annual basis to confirm overall conditions.

5.2.3 Phase 1 DGR™

Performance monitoring data collected in 2020 indicates that the system is operating as designed with expected operation and maintenance activities to maintain performance. Concentrations downgradient within the shallow portion of the upper aquifer are below VISLs. In 2021, performance monitoring for the Phase 1 DGR™ interim measure will continue on a semi-annual basis.

5.3 Post-Closure Monitoring

As proposed in the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002), post-closure monitoring data collected at the closed North and South Settling Lagoons were evaluated to determine if these closed units may be contributing site-specific VOCs to groundwater.

This evaluation of post-closure monitoring data indicate that these units do not appear to be affecting groundwater quality. The active groundwater remediation in the closed South Settling Lagoon interferes with the evaluation for the potential impacts to groundwater from the closed South Settling Lagoon. It is recommended that the statistical evaluation for the closed South Settling Lagoon be suspended until Phase 1 DGR™ interim measure operation has ceased. Note that over the nearly 20 years of monitoring, the closed South Settling Lagoon has not been suggested as a source of hazardous waste constituents. The closed South Settling Lagoon monitoring well network will continue to be sampled for monitoring associated with Phase 1 DGR™ interim measure, and the results will be provided in a future Supplementary Annual Reports. For the closed North Settling Lagoon, there are no changes in the monitoring program proposed for 2021.

5.4 Groundwater Monitoring Upgradient of IRZ-3 West

Groundwater monitoring upgradient of IRZ-3 West was completed to evaluate concentrations of site-specific VOCs in groundwater upgradient of the treatment area. Based on monitoring results in 2020, continued monitoring of this area is proposed to evaluate contaminant migration as it approaches the property boundary and whether the Phase 1 DGR™ interim measure affects this portion of the Site. The monitoring network for this area in 2021 will remain consistent with the network used in 2020.

5.5 2021 Groundwater Monitoring Program

Based on the on-going remedial design tasks and expected remedy implementation, it is proposed that the 2021 groundwater monitoring program remain mostly consistent with the sampling program for 2020. This includes monitoring associated with the off-site groundwater monitoring, in-situ reactive zones, extraction well DN-13, Phase 1 DGR™, the closed North and South Settling Lagoons, and upgradient of IRZ-3 West. The proposed groundwater monitoring program for 2021 is provided in **Table 8**.

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Tables

Table 1
Groundwater Monitoring Program for 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Off-Site Downgradient Monitoring Wells Upgradient of Miami Shores Neighborhood

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1] and field parameters[2]:

GM-80	RMW-95	RMW-96	RMW-97

Off-Site DN-13 Capture Zone Performance Monitoring Wells

Lower aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1] and field parameters[2]:

DN-13	GM-9	GM-15	GM-20D

In-Situ Reactive Zone Performance Monitoring Wells

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1], field parameters[2], and biogeochemical parameters[3]:

GM-2	GM-6	GM-8	GM-19S	GM-21
GM-23	GM-27	GM-28R	GM-29	GM-32

Closed North and South Settling Lagoon Monitoring Wells

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1] and field parameters[2]:

HR-4	W-2-N	W-2-S
HR-17	W-3-N	W-3-S
HR-1	W-4-N	W-4-S

Phase I DGR™ Performance Monitoring Wells[5]

Upper aquifer monitoring wells[6] to be analyzed for the site-specific list of VOCs[1] and field parameters[2]:

HR-16	GM-49	GM-63	RMW-93	RMW-100
GM-16	GM-50	GM-64	RMW-94	RMW-101
GM-47	GM-51	RMW-91	RMW-98	RMW-102
GM-48	GM-52	RMW-92	RMW-99	WSU-23

Monitoring Wells Upgradient of IRZ-3 West

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1] and field parameters[2]:

GM-35	GM-36	GM-37
GM-38	EAST	WEST

Analytical Methods

Parameter	Analytical Method
Site-specific list of VOCs	SW846 8260B
Total organic carbon	SW846 9060
Ethane, ethene, methane	AM20GAX

Table 1
Groundwater Monitoring Program for 2020
RACER Trust Moraine Facilities
Moraine, Ohio

NOTES:

1 – Site-specific list of VOCs for 2020 includes: benzene, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, ethylbenzene, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride, and xylenes.

2 – Field parameters include: pH, specific conductivity, dissolved oxygen, oxidation reduction potential, and temperature.

3 – Biogeochemical parameters include: total organic carbon (TOC), ethane, ethene, and methane.

4 – Upper aquifer monitoring well GM-32 will not be analyzed for ethane, ethene, or methane.

5 – All Phase 1 DGR™ Performance Monitoring Wells were sampled semi-annually except HR-16, GM-49, and GM-52 (sampled annually).

6 – Includes monitoring wells HR-17, W-2-S, W-3-S, W-4-S, and GM-19S.

Table 2
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2020
RACER Trust Moraine Facilities
Moraine, Ohio

			Downgradient Reactive Zone Performance Monitorng Wells										
			GM-2	GM-6	GM-8	GM-19S		GM-21	GM-23	GM-27	GM-28R	GM-29	GM-32
		U.S. EPA	7/31/2020	7/31/2020	7/31/2020	2/13/2020	7/31/2020	7/31/2020	7/31/2020	7/31/2020	7/31/2020	7/31/2020	7/31/2020
	Units	MCL[1]	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer
Site-Specific Volatile Organic Compounds													
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	7.8	< 1.0 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	< 1.0 U	< 1.0 U	1.2	1.1	7.0	9.9	< 1.0 U	< 1.0 U	9.5	0.43 J
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	32	28	11	**140**	7.7	0.91 J	**380**	< 1.0 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
Tetrachloroethene	ug/L	5	**30**	< 1.0 U*	< 1.0 U*	2.6	1.5	< 1.0 U*	3.3	0.85 J*	0.92 J	**11**	< 1.0 U*
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	1.3	11	< 1.0 U	< 1.0 U	25	< 1.0 U
Trichloroethene	ug/L	5	3.9	< 1.0 U	< 1.0 U	3.2	2.7	1.7	**6.8**	**22**	< 1.0 U	**290**	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U*	< 1.0 U*	< 1.0 U*	**2.1**	**2.9**	**8.0**	**190**	< 1.0 U*	< 1.0 U	**42**	< 1.0 U*
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.7 U	< 2.0 U
Total Site-Specific VOCs	ug/L		34	0.0	1.3	42	36	29	361	31	1.8	765	0.43

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

The QA/QC results for 2020 data are shown in Appendix C.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

B - Compound was found in the blank and sample.

F1 - MS and/or MSD recovery exceeds control limits.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

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Table 2
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2020
RACER Trust Moraine Facilities
Moraine, Ohio

			Closed North Settling Lagoon Monitoring Wells					Closed South Settling Lagoon Monitoring Wells							
			HR-1	HR-4	W-2-N	W-3-N	W-4-N	HR-17		W-2-S		W-3-S		W-4-S	
		U.S. EPA	7/29/2020	7/29/2020	7/29/2020	7/29/2020	7/29/2020	2/13/2020	7/29/2020	2/12/2020	7/29/2020	2/13/2020	7/29/2020	2/13/2020	7/29/2020
	Units	MCL[1]	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 10 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	1.7	3.6	1.3	0.85 J	1.9	1.6	1.7 J	0.71 J
1,1-Dichloroethane	ug/L	--	< 10 U	1.3	< 1.0 U	< 1.0 U	7.3	< 1.0 U	< 2.0 U	0.79 J	0.60 J	0.28 J	0.48 J	0.72 J	< 2.0 U
1,1-Dichloroethene	ug/L	7	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Benzene	ug/L	5	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
cis-1,2-Dichloroethene	ug/L	70	20	0.42 J	1.8	13	8.2	1.3	< 2.0 U	1.2	1.7	1.5	1.9	9.4	1.0 J
Ethylbenzene	ug/L	700	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Tetrachloroethene	ug/L	5	**120**	< 1.0 U	< 1.0 U	< 1.0 U	0.81 J	**170**	**160**	1.0	**6.3**	**140**	**110**	**43**	**37**
Toluene	ug/L	1,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
trans-1,2-Dichloroethene	ug/L	100	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	0.55 J	< 1.0 U	< 2.0 U	0.25 J	< 1.0 U	< 1.0 U	< 1.0 U	0.79 J	< 2.0 U
Trichloroethene	ug/L	5	**25**	0.36 J	0.79 J	< 1.0 U	**6.9**	1.9	< 2.0 U	**5.9**	3.6	1.1	2.0	**48**	**9.1**
Vinyl chloride	ug/L	2	< 10 U	< 1.0 U	< 1.0 U	0.88 J	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Xylene (total)	ug/L	10,000	< 20 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 4.0 U
Total Site-Specific VOCs	ug/L		165	4.0	2.6	14	24	175	164	10	13	145	116	104	48

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

The QA/QC results for 2020 data are shown in Appendix C.

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Table 2
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2020
RACER Trust Moraine Facilities
Moraine, Ohio

			Downgradient Off-Site Monitoring Wells				Phase 1 DGR™ System Performance Monitoring Wells								
			GM-80	RMW-95	RMW-96	RMW-97	HR-16	RMW-91		RMW-92		RMW-93		RMW-94	
		U.S. EPA	7/30/2020	7/30/2020	7/30/2020	7/30/2020	7/29/2020	2/14/2020	7/28/2020	2/14/2020	7/28/2020	2/13/2020	7/28/2020	2/13/2020	7/28/2020
	Units	MCL[1]	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	0.48 J	< 1.0 U	< 1.0 U	0.52 J	2.8	1.8 J	1.4 J	1.3 J	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.67 J	1.8	< 5.0 U	0.56 J	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
cis-1,2-Dichloroethene	ug/L	70	0.92 J	< 1.0 U	< 1.0 U	< 1.0 U	0.45 J	12	8.9	0.84 J	0.79 J	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Tetrachloroethene	ug/L	5	**12**	**8.4**	2.7	3.3	0.42 J	**100**	**83**	**54**	**50**	**50**	**22**	**38**	**27**
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Trichloroethene	ug/L	5	2.0	1.2	< 1.0 U	< 1.0 U	2.8	**59**	**53**	1.0 J	0.96 J	3.7	0.86 J	0.39 J	< 1.7 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 10 U	< 4.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 4.0 U	< 3.3 U
Total Site-Specific VOCs	ug/L		15	10	2.7	3.3	4.9	177	147	58	53	54	23	38	27

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

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Table 2
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2020
RACER Trust Moraine Facilities
Moraine, Ohio

			Phase 1 DGR™ System Performance Monitoring Wells														
			GM-16		GM-47		GM-48		GM-49	GM-50		GM-51		GM-52	GM-63		
		U.S. EPA	2/11/2020	7/28/2020	2/12/2020	7/27/2020	2/12/2020	7/27/2020	7/27/2020	2/12/2020	7/27/2020	2/12/2020	7/27/2020	7/27/2020	2/11/2020	7/28/2020	
	Units	MCL[1]	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	
Site-Specific Volatile Organic Compounds																	
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	0.85 J	0.57 J	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0 J	< 1.0 U	
1,1-Dichloroethane	ug/L	--	2.3	0.45 J	0.70 J	2.7	1.4	1.3	0.75 J	0.67 J	2.2	2.0	1.1	< 1.0 U	< 2.0 U	< 1.0 U	
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	
cis-1,2-Dichloroethene	ug/L	70	6.2	1.7	9.3	38	4.3	4.5	2.4	8.3	7.0	2.9	3.8	< 1.0 U	5.3	2.0	
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	
Tetrachloroethene	ug/L	5	**10.0**	**12.0**	3.3	**33**	**13**	**18**	**14**	3.6	1.9	**26**	**25**	**15**	**51**	**37**	
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	
Trichloroethene	ug/L	5	3.1	3.0	1.1	**10**	13	**11**	**28**	1.1	0.75 J	1.2	1.4	1.0	1.5 J	2.2	
Vinyl chloride	ug/L	2	0.52 J	< 1.0 U	0.33 J	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 2.0 U	
Total Site-Specific VOCs	ug/L		22	17	15	84	33	35	46	14	13	32	31	16	59	41	

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

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Table 2
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2020
RACER Trust Moraine Facilities
Moraine, Ohio

			Phase 1 DGR™ System Performance Monitoring Wells													
			GM-64		RMW-98		RMW-99		RMW-100		RMW-101		RMW-102		WSU-23	
		U.S. EPA	2/11/2020	7/28/2020	2/14/2020	7/28/2020	2/14/2020	7/28/2020	2/11/2020	7/27/2020	2/11/2020	7/27/2020	2/11/2020	7/28/2020	2/13/2020	7/28/2020
	Units	MCL[1]	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer
Site-Specific Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	200	< 2.0 U	< 1.0 U	2.0	0.55 J	1.2 J	0.51 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	1.3 J
1,1-Dichloroethane	ug/L	--	2.1	0.58 J	0.45 J	< 2.0 U	< 2.0 U	< 2.0 U	0.26 J	0.42 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	0.62 J	< 4.0 U
1,1-Dichloroethene	ug/L	7	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 4.0 U
Benzene	ug/L	5	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 4.0 U
cis-1,2-Dichloroethene	ug/L	70	57	29	1.2 J	< 2.0 U	< 2.0 U	1.8 J	0.67 J	0.67 J	< 1.0 U	< 1.0 U	10	< 1.0 U	0.65 J	< 4.0 U
Ethylbenzene	ug/L	700	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 4.0 U
Tetrachloroethene	ug/L	5	**24**	**14**	**62**	**42**	**52**	**46**	< 1.0 U	< 1.0 U	0.35 J	0.36 J	< 1.0 U	**12.0**	**5.3**	**73**
Toluene	ug/L	1,000	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 4.0 U
trans-1,2-Dichloroethene	ug/L	100	0.80 J	0.46 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.58 J	< 1.0 U	< 1.0 U	< 4.0 U
Trichloroethene	ug/L	5	**24**	4.3	3.4	< 2.0 U	1.7 J	0.73 J	< 1.0 U	< 1.0 U	0.14 J	< 1.0 U	0.63 J	0.37 J	4.7	3.5 J
Vinyl chloride	ug/L	2	2.7	1.5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	< 1.0 U	< 4.0 U
Xylene (total)	ug/L	10,000	< 4.0 U	< 2.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 8.0 U
Total Site-Specific VOCs	ug/L		111	50	69	43	55	49	0.93	1.1	0.49	0.36	13	12	13	78

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

The QA/QC results for 2020 data are shown in Appendix C.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

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Table 2
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2020
RACER Trust Moraine Facilities
Moraine, Ohio

			DN-13 Performance Monitoring Wells				Monitoring Wells Upgradient of IRZ-3 West					
			DN-13	GM-9	GM-15	GM-20D	GM-35	GM-36	GM-37	GM-38	EAST	WEST
		U.S. EPA	7/28/2020	7/30/2020	7/29/2020	7/29/2020	7/30/2020	7/30/2020	7/30/2020	7/30/2020	7/30/2020	7/30/2020
	Units	MCL[1]	Lower Aquifer	Lower Aquifer	Lower Aquifer	Lower Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer	Upper Aquifer
Site-Specific Volatile Organic Compounds												
1,1,1-Trichloroethane	ug/L	200	0.56 J	0.90 J	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	0.96 J	< 1.0 U	2.6	< 1.0 U	19 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	4.2	< 1.0 U	12	< 1.0 U	**92 F1**	< 1.0 U	< 1.0 U	1.5	< 1.0 U	6.0
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	1.2	< 1.0 U	< 1.0 U	3.1	**13 J**	**11**	**7.7**	**20**	**15**	**13**
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	0.64 J	< 1.0 U	9.0 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**5.6**	**13**	4.5	< 1.0 U	**150**	0.82 J	0.89 J	3.4	1.6	4.4
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	0.56 J	< 1.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.98 J
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 40 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		13	14	20	3.1	283	12	8.6	26	17	26

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

The QA/QC results for 2020 data are shown in Appendix C.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

B - Compound was found in the blank and sample.

F1 - MS and/or MSD recovery exceeds control limits.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

* - LCS or LCSD is outside acceptable limits

Table 3
DN-13 Monthly Effluent Monitoring for 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Volatile Organic Compound[1]	Units	1/14/2020	2/12/2020	3/6/2020	4/3/2020	5/7/2020	6/2/2020	7/1/2020	8/10/2020	9/2/2020	10/2/2020	11/3/2020	12/3/2020
1,1,1-Trichloroethane	ug/L	0.42 J	0.51 J	0.47 J	0.51 J	0.47 J	0.42 J	0.45 J	0.38 J	0.37 J	0.47 J	0.42 J	0.53 J
1,1-Dichloroethane	ug/L	0.90 J	0.90 J	0.86 J	0.96 J	0.82 J	1.1	0.80 J	0.75 J	0.86 J	0.94 J	1.1	1.1
Benzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	3.5	3.8	3.7	3.7	3.3	3.9	3.4	3.1	3.0	3.7	3.9	3.9
Ethylbenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	0.84 J	0.75 J	0.72 J	0.74 J	0.69 J	0.64 J	0.65 J	0.65 J	0.67 J	0.65 J	0.75 J	0.70 J
Toluene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5.0	4.9	4.7	5.1	4.3	4.3	4.2	3.6	4.6	4.1	3.9	3.8
Vinyl chloride	ug/L	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	0.25 J	< 1.0 U	< 1.0 U	0.22 J	0.26 J	0.29 J
Xylene (total)	ug/L	< 2.0 U	< 2.0 U	0.33 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**	**11**	**11**	**11**	**11**	**9.6**	**11**	**9.8**	**8.5**	**9.5**	**10**	**10**	**10**

NOTES:
[1] - Analytical method for volatile organic compounds (VOC) analysis is U.S. EPA Method 624.
< - Constituent not detected above laboratory reporting limit shown.
ug/L - Micrograms per Liter.
J - Estimated result less than reporting limit.
U - Constituent not detected above laboratory reporting limit shown.

Table 4
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation ft amsl	TOC Elevation ft amsl	Vertical Datum Used	Well Diameter inches	Screened Interval ft bls	Screened Interval ft bls	Screened Interval ft amsl	Screened Interval ft amsl	Borehole Depth ft bls	State Plane Coordinates Northing, y	State Plane Coordinates Easting, x	Geologic Modifiers
Upper Aquifer Wells												
W-1-N	737.61	739.02	NGVD 29	4	35	70	702.61	667.61	70	625116.3422	1483946.8992	UA:TT
W-2-N	729.68	731.68	NGVD 29	4	35	60	694.68	669.68	60	623866.0756	1483351.7627	UA
W-3-N	731.98	733.66	NGVD 29	4	32	57	699.98	674.98	57	623695.7949	1483607.4206	UA
W-4-N	729.88	731.63	NGVD 29	4	40	65	689.88	664.88	65	623651.7734	1483795.1345	UA:TT
HR-1	730.10	732.71	NGVD 29	2	47	57	683.10	673.10	57	621967.8549	1483377.9900	UA:TT
HR-2	732.62	734.75	NGVD 29	2	47	57	685.62	675.62	58	623649.4613	1484030.9239	UA:TT
HR-3	734.31	736.75	NGVD 29	2	50	60	684.31	674.31	61	623611.9924	1484238.1821	UA:TT
HR-4	740.61	742.60	NGVD 29	2	55	65	685.61	675.61	67	624581.9005	1484003.6807	UA:TT
HR-5	730.95	734.27	NGVD 29	2	44	54	686.95	676.95	59	623354.7012	1483478.7701	UA:TT
HR-6	730.18	732.66	NGVD 29	2	43	53	687.18	677.18	59	622588.7007	1483298.9418	UA:TT
HR-7	731.00	731.73	NGVD 29	2	47	57	684.00	674.00	58	623373.7436	1483168.4377	UA:TT
HR-11	740.90	743.33	NGVD 29	2	60	70	680.90	670.90	75	625682.5579	1485262.8401	UA
HR-16	724.11	726.02	NAVD 88	4	42	62	682.11	662.11	70	621167.5622	1482171.8835	UA:TT
HR-17	724.70	725.42	NAVD 88	4	27	47	697.70	677.70	56	621132.8793	1482765.5781	UA:TT
W-1-S	728.23	729.29	NGVD 29	4	25	60	703.23	668.23	60	621395.9961	1482990.4905	UA:TT
W-2-S	724.38	725.67	NAVD 88	4	30	65	694.38	659.38	65	620607.2655	1482017.2170	UA:TT
W-3-S[1]	726.20	728.16	NAVD 88	4	36	76	690.20	650.20	76	620461.1503	1482167.2361	UA
W-4-S	725.61	726.76	NAVD 88	4	30	70	695.61	655.61	70	620363.7795	1482551.3692	UA
GM-2[2]	732.89	734.76	NAVD 88	2	45	55	687.89	677.89	55	619576.6485	1483413.7313	UA
4S[2]	NM	731.36	NGVD 29	4	30	65	699.00	664.00	65	619578.3189	1483129.7015	UA
GM-6[2]	727.55	729.24	NAVD 88	2	35	45	696.00	686.00	45	619632.5634	1482916.2533	UA:TT
GM-8	732.67	734.40	NAVD 88	2	40	50	692.67	682.67	50	619866.4717	1482965.5616	UA:TT
GM-10[2]	NM	723.90	NGVD 29	2	40	50	681.00	671.00	50	618762.7050	1482667.6948	UA:TT
GM-16[2]	724.49	724.29	NAVD 88	2	48	58	678.00	668.00	58	619424.9146	1482135.0492	UA
GM-17[2]	723.07	722.79	NAVD 88	2	40	50	684.00	674.00	50	619316.6254	1482682.9181	UA
GM-18[2]	722.98	722.71	NAVD 88	2	45	55	679.00	669.00	55	619232.8332	1482506.6521	UA:TT
GM-19S[2]	727.84	729.72	NAVD 88	2	47	57	691.00	681.00	57	620331.9954	1483061.1382	UA:TT
GM-21	725.36	725.00	NGVD 29	2	45	55	680.36	670.36	55	619920.6783	1483764.4734	UA:TT
GM-22	731.84	731.63	NGVD 29	2	44	54	687.84	677.84	54	620840.5066	1484226.4408	UA:TT
GM-23[2]	NM	731.07	NGVD 29	2	24	34	674.00	664.00	34	623699.0734	1484620.0452	UA:TUT
GM-24	747.61	747.29	NAVD 88	2	58	68	689.61	679.61	70	625945.1862	1486991.6799	UA
GM-25	747.05	746.17	NGVD 29	2	48	58	699.05	689.05	58	622786.3571	1486599.7086	UA:TT
GM-26	722.29	722.29	NGVD 29	2	50	60	672.29	662.29	60	617729.9754	1482129.1606	UA
GM-27	731.03	730.57	NGVD 29	2	40	50	691.03	681.03	58	623696.6847	1484630.6938	UA:TT
GM-28[2][3]	NM	736.46	NGVD 29	2	22	32	715.00	705.00	32	623392.5301	1484436.9072	UA:TUT
GM-28R	731.70	731.08	NAVD 88	2	20	30	711.70	701.70	30.5	623340.8523	1484507.2774	UA
GM-29	731.31	731.37	NGVD 29	2	28	38	703.31	693.31	38	623534.5654	1484535.0169	UA:TUT
GM-30[2][4]	NM	734.79	NGVD 29	2	28	38	707.00	697.00	38	623876.3291	1484609.6320	UA:TUT

Table 4
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation ft amsl	TOC Elevation ft amsl	Vertical Datum Used	Well Diameter inches	Screened Interval ft bls	Screened Interval ft bls	Screened Interval ft amsl	Screened Interval ft amsl	Borehole Depth ft bls	State Plane Coordinates Northing, y	State Plane Coordinates Easting, x	Geologic Modifiers
Upper Aquifer Wells												
GM-31[4]	732.05	732.13	NGVD 29	2	51	61	681.05	671.05	62	621336.9494	1483965.1492	UA:TT
GM-32	732.47	732.08	NGVD 29	2	51	61	681.47	671.47	51	620114.1810	1483380.0271	UA:TT
GM-33	729.19	728.94	NAVD 88	2	48	58	681.19	671.19	58	620731.1934	1483641.4943	UA:TT
GM-34	729.95	729.27	NAVD 88	2	26	36	703.95	693.95	36	620730.0924	1483650.2951	UA:WT
GM-35	730.56	730.27	NAVD 88	2	57	67	673.56	663.56	70	620275.4483	1483275.5872	UA:TT
GM-36	731.44	731.11	NGVD 29	2	25	35	706.44	696.44	35	620383.1025	1483300.7238	UA:WT
GM-37	730.36	730.05	NGVD 29	2	46	56	684.36	674.36	56	620407.4613	1483455.9922	UA:TT
GM-38	730.31	729.88	NGVD 29	2	24	34	706.31	696.31	34	620403.1545	1483471.6717	UA:WT
GM-43	729.41	729.00	NGVD 29	2	40	50	689.41	679.41	54	622192.1557	1483441.3758	UA:TT
GM-44	729.30	728.77	NGVD 29	2	51	61	678.30	668.30	62	621686.3979	1483331.5242	UA:TT
GM-45	728.45	728.13	NAVD 88	2	50	60	678.45	668.45	60	621415.3955	1483241.9111	UA:TT
GM-46	728.13	727.79	NGVD 29	2	19.8	29.8	708.33	698.33	29.8	623393.7044	1484776.8931	UA:TUT
GM-47	726.06	725.81	NAVD 88	2	49.4	59.4	676.66	666.66	59.4	620016.5433	1482461.3001	UA:TT
GM-48	727.98	727.68	NAVD 88	2	63.2	73.2	664.78	654.78	73.2	619464.8685	1481739.2763	UA:TT
GM-49	727.22	726.99	NAVD 88	2	66.9	76.9	660.32	650.32	76.9	618612.3745	1481727.8482	UA:TT
GM-50	726.05	725.62	NAVD 88	2	29.7	39.7	696.35	686.35	39.7	620016.4003	1482458.0941	UA:WT
GM-51	727.95	727.45	NAVD 88	2	34.3	44.3	693.65	683.65	44.3	619469.2504	1481738.8331	UA:WT
GM-52	727.11	726.67	NAVD 88	2	34	44	693.11	683.11	44	618608.4894	1481726.9191	UA:WT
GM-53	730.53	730.35	NGVD 29	2	23	33	707.53	697.53	33	621184.8217	1484855.5742	UA:TT
GM-55	719.90	719.86	NGVD 29	2	25	35	694.90	684.90	35	618008.1622	1482441.5884	UA:WT
GM-57[5]	719.41	721.40	NGVD 29	2	25	35	694.41	684.41	35	617724.0893	1482132.1444	UA:WT
GM-59	731.53	731.27	NAVD 88	2	25	35	706.53	696.53	35	622767.2094	1484695.7471	UA:WT
GM-60	731.53	731.27	NAVD 88	2	42	52	689.53	679.53	52	622766.9994	1484695.8173	UA:TT
GM-62R	723.15	723.51	NAVD 88	2	50	60	673.15	663.15	60	618423.9572	1482812.6551	UA
GM-63	725.32	724.86	NAVD 88	2	30	40	695.32	685.32	40	620288.2393	1482671.1783	UA:WT
GM-64	725.46	725.05	NAVD 88	2	50	60	675.46	665.46	60	620289.0605	1482666.2013	UA:TT
GM-65S	723.94	723.58	NGVD 29	2	42	52	681.94	671.94	52	617392.3535	1481382.3676	UA
GM-66	733.50	733.22	NGVD 29	2	45	55	688.50	678.50	57	622780.5074	1484091.4645	UA:TT
GM-67S	732.54	732.06	NGVD 29	2	44	54	688.54	678.54	54	623050.1586	1484547.1769	UA:TT
GM-68S	732.48	732.18	NGVD 29	2	39.5	49.5	692.977	682.977	49.5	622326.0756	1484652.7126	UA:TT
GM-71	736.24	735.83	NAVD 88	2	21	31	715.24	705.24	37	622639.9705	1485205.9213	UA:TUT
GM-72	736.22	735.88	NAVD 88	2	52	62	684.22	674.22	67	622639.3773	1485217.5213	UA:TT
GM-74S	732.52	732.17	NGVD 29	2	40	50	692.52	682.52	50	622444.3916	1484733.7684	UA:TT
GM-75S	737.20	736.67	NAVD 88	2	42	52	695.20	685.20	52	622796.9285	1485021.8931	UA:TT
GM-76S	738.58	738.09	NAVD 88	2	27	37	711.58	701.58	37	623545.3663	1485296.6672	UA:TT
GM-77S	740.55	740.18	NAVD 88	2	33	43	707.55	697.55	43	621583.3135	1485875.9373	UA:TT
GM-78	721.58	721.18	NGVD 29	2	40	50	681.58	671.58	70	618257.6566	1483035.5080	UA
GM-79	717.57	717.02	NAVD 88	2	45	55	672.57	662.57	60	618974.2075	1481032.1012	UA:TT

Table 4
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation ft amsl	TOC Elevation ft amsl	Vertical Datum Used	Well Diameter inches	Screened Interval ft bls	ft bls	ft amsl	ft amsl	Borehole Depth ft bls	State Plane Coordinates Northing, y	Easting, x	Geologic Modifiers
Upper Aquifer Wells												
GM-80	715.37	714.95	NAVD 88	2	15	25	700.37	690.37	25	617955.6603	1480925.8022	UA:WT
GM-81	714.87	714.36	NAVD 88	2	50	60	664.87	654.87	90	617939.2906	1480921.4302	UA
GM-83S	726.44	725.84	NGVD 29	2	44	54	682.44	672.44	54	622568.7569	1482112.8680	UA:TT
RMW-89	738.84	738.50	NAVD 88	2	40.7	50.7	698.14	688.14	65	623394.9330	1484777.0130	UA
RMW-90	727.21	726.84	NAVD 88	2	43.5	53.5	683.71	673.71	100	623394.2373	1484776.9973	UA:TT
RMW-91	723.16	725.50	NAVD 88	2	48	53	675.16	670.16	57	620642.1503	1482814.1912	UA:WT
RMW-92	723.37	725.92	NAVD 88	2	26	36	697.37	687.37	38	620642.2605	1482803.2532	UA
RMW-93	724.66	727.56	NAVD 88	2	50	60	674.66	664.66	60	620378.8205	1482440.7132	UA:TT
RMW-94	724.83	727.53	NAVD 88	2	30	40	694.83	684.83	40	620379.9835	1482432.7103	UA
RMW-95	716.01	715.33	NAVD 88	2	6.3	21.3	709.71	694.71	22	619596.2154	1480976.9852	UA
RMW-96	717.12	716.73	NAVD 88	2	7.5	22.5	709.62	694.62	24	618973.8564	1481026.2131	UA
RMW-97	714.84	714.21	NAVD 88	2	9	24	705.84	690.84	24	618501.5463	1480934.2432	UA
RMW-98	725.40	725.10	NAVD 88	2	52	62	673.40	663.40	65	619768.1714	1481983.4441	UA:TT
RMW-99	725.40	724.95	NAVD 88	2	25	35	700.40	690.40	35	619767.9175	1481979.7421	UA
RMW-100	724.08	723.58	NAVD 88	2	40	50	684.08	674.08	56	619667.5355	1482692.4191	UA:TT
RMW-101	723.74	723.47	NAVD 88	2	25	35	698.74	688.74	35	619669.6103	1482702.1871	UA
RMW-102	724.42	723.98	NAVD 88	2	15	25	709.42	699.42	25	619426.2700	1482141.2680	UA:WT
PW-1S	736.18	735.76	NAVD 88	2	36	51	700.18	685.18	54	622968.4833	1484992.4841	UA
PW-1D	736.18	735.82	NAVD 88	2	51.5	56.5	684.68	679.68	60	622975.6174	1484993.9713	UA:TT
PW-2S/D	736.05	735.34	NAVD 88	2	41	61	695.05	675.05	62.5	622929.6694	1484983.1901	UA:TT
PW-3S	736.13	735.75	NAVD 88	2	36	41	700.13	695.13	70	622949.6336	1484987.7341	UA
PW-3D	736.13	735.79	NAVD 88	2	47	57	689.13	679.13	70	622949.3675	1484987.8601	UA:TT
PW-4S	736.17	735.73	NAVD 88	2	37	47	699.17	689.17	50	622964.5725	1484989.6701	UA
PW-4D	736.18	735.67	NAVD 88	2	50	55	686.18	681.18	55	622971.9665	1484991.4043	UA:TT
PW-5S	735.99	735.52	NAVD 88	2	39	49	696.99	686.99	63	622919.2714	1484979.0700	UA
PW-5D	735.99	735.62	NAVD 88	2	56	61	679.99	674.99	63	622919.0355	1484979.3473	UA:TT
PW-6S	731.35	731.08	NAVD 88	2	25	35	706.35	696.35	35	622831.4373	1484839.3141	UA
PW-6D	731.35	731.04	NAVD 88	2	40	50	691.35	681.35	63.5	622837.3753	1484840.7872	UA:TT
EW-1	725.30	723.55	NAVD 88	8	40	60	685.30	665.30	63	620643.5204	1482283.2113	UA:TT
EW-2	725.80	724.48	NAVD 88	8	39.5	59.5	686.30	666.30	63	620644.8832	1482499.9953	UA:TT
EW-3	723.17	721.98	NAVD 88	8	40	52	683.17	671.17	55.00	620646.3855	1482720.7373	UA:TT
IW-1	726.08	722.84	NAVD 88	8	40	60	686.08	666.08	63.00	620405.0182	1482239.1493	UA:TT
IW-2	725.71	722.20	NAVD 88	8	39.5	59.5	686.21	666.21	63.00	620369.9035	1482502.2951	UA:TT
IW-3	725.50	722.38	NAVD 88	8	25	57	700.50	668.50	59.00	620367.3425	1482636.8894	UA:TT
IW-4	723.41	720.59	NAVD 88	8	25	55	698.41	668.41	57.00	620353.3333	1482784.9193	UA:TT
EAST	NM	730.98	NGVD 29	2	NA	NA	NA	NA	71	620545.7428	1483674.2296	UA:TT

Table 4
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation ft amsl	TOC Elevation ft amsl	Vertical Datum Used	Well Diameter inches	Screened Interval ft bls	Screened Interval ft bls	Screened Interval ft amsl	Screened Interval ft amsl	Borehole Depth ft bls	State Plane Coordinates Northing, y	State Plane Coordinates Easting, x	Geologic Modifiers
Upper Aquifer Wells												
WEST	727.75	729.96	NAVD 88	2	NA	NA	NA	NA	52	620514.8140	1483285.0590	UA:TT
WSU-17	726.93	726.18	NGVD 29	2	11.69	66.9	715.24	659.28	67	619558.3274	1482898.5143	UA:TT
WSU-18	734.18	733.52	NGVD 29	2	29.2	69.2	704.98	664.32	69	619554.9064	1483096.6037	UA:TT
WSU-19	727.28	726.62	NGVD 29	2	33.4	63.4	693.88	663.22	63	619736.8210	1482880.5343	UA:TT
WSU-22	726.21	726.49	NGVD 29	2	NA	NA	NA	NA	52	620311.3992	1482687.1755	UA:TT
WSU-23	724.65	724.90	NAVD 88	2	NA	NA	NA	NA	58	620364.2043	1481954.6233	UA:TT
WSU-24	725.10	724.82	NGVD 29	2	NA	NA	NA	NA	66	619123.9935	1483169.1543	UA:TT
TW-2[(2)]	NM	733.38	NGVD 29	10	35	45	696.00	686.00	45	619624.0349	1482956.5220	UA:TT
ME-2[(4)]	731.60	731.28	NGVD 29	2	27	37	704.60	694.60	37	621327.2647	1484014.4997	UA:WT
ME-3[(4)]	732.23	731.73	NGVD 29	2	29	39	703.23	693.23	39	621288.4112	1483969.5710	UA:WT
ME-4[(4)]	732.05	732.24	NGVD 29	2	26	36	706.05	696.05	36	621321.5257	1483952.4713	UA:WT
ME-6[(4)]	733.09	732.68	NGVD 29	2	29	39	704.09	694.09	39	621706.8006	1484056.9183	UA:WT
MW-1[(6)]	713.60	715.53	NGVD 29	2	61.2	71.2	652.40	642.40	71.7	621420.5218	1480209.1085	UA:TT
MW-4[(6)]	707.45	707.19	NGVD 29	2	19.6	39.6	687.85	667.85	40	619035.3973	1478050.2153	UA
MW-5[(6)]	708.62	708.37	NAVD 88	2	22.5	42.5	686.12	666.12	43	618790.0375	1478957.6694	UA
MW-9[(6)]	712.23	711.93	NAVD 88	2	63	73	649.23	639.23	73.5	617171.4834	1478734.3033	UA

Table 4
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation ft amsl	TOC Elevation ft amsl	Vertical Datum Used	Well Diameter inches	Screened Interval ft bls	Screened Interval ft bls	Screened Interval ft amsl	Screened Interval ft amsl	Borehole Depth ft bls	State Plane Coordinates Northing, y	State Plane Coordinates Easting, x	Geologic Modifiers
Lower Aquifer Wells												
GM-1	NM	735.74	NGVD 29	2	90	100	NA	NA	100	619570.5560	1483421.7187	LA
GM-3	NM	730.44	NGVD 29	2	90	100	NA	NA	100	619621.9125	1482926.4692	LA
GM-4	NM	731.46	NGVD 29	2	140	150	NA	NA	150	619602.6754	1482922.7239	LA
GM-5	NM	731.29	NGVD 29	2	90	100	NA	NA	100	619588.5805	1483126.5199	LA
GM-7R	NM	735.61	NGVD 29	2	80	90	NA	NA	91	619863.8661	1482962.0547	LA
GM-9	NM	724.07	NGVD 29	2	90	100	NA	NA	100	618771.6911	1482674.0591	LA
GM-11	NM	723.71	NGVD 29	2	90	100	NA	NA	100	619318.5089	1482694.0850	LA
GM-13	722.88	722.78	NAVD 88	2	90	100	632.879	622.879	100	619238.8323	1482505.1833	LA
GM-14	722.64	722.46	NAVD 88	2	140	150	582.639	572.639	150	619234.0235	1482491.2341	LA
GM-15	724.66	724.46	NAVD 88	2	90	100	634.655	624.655	100	619422.4854	1482146.2630	LA
GM-19D	727.90	729.40	NGVD 29	4	145	150	582.90	577.90	150	620339.8789	1483063.5355	LA
GM-20D	NM	727.26	NGVD 29	4	87	92	NA	NA	92	619177.7112	1483236.8897	LA
GM-39	731.15	730.95	NGVD 29	2	106	116	625.15	615.15	116	623705.4735	1484609.1916	LA
GM-40	727.28	727.04	NGVD 29	2	140	150	587.28	577.28	150	621693.6605	1483084.8346	LA
GM-41	731.22	733.65	NGVD 29	2	104	114	627.22	617.22	114	621635.8247	1484818.2843	LA
GM-42	729.48	729.16	NGVD 29	2	140	150	589.48	579.48	150	620810.1825	1483562.4718	LA
GM-54	730.51	730.29	NGVD 29	2	70	80	660.51	650.51	80	621182.0368	1484848.7664	LA
GM-56	719.75	719.52	NGVD 29	2	75	85	644.75	634.75	85	618006.2067	1482448.5881	LA:NTP
GM-58	735.59	735.46	NGVD 29	2	72	82	663.59	653.59	82	621541.9705	1485308.7484	LA:BT
GM-61	731.56	731.28	NAVD 88	2	70	80	661.56	651.56	80	622768.3373	1484690.5273	LA:BT
GM-65D	723.83	723.54	NGVD 29	2	85	95	638.83	628.83	108	617389.4778	1481380.3420	LA:NTP
GM-67D	731.69	731.23	NAVD 88	2	70	80	661.69	651.69	121	623059.1783	1484516.3633	LA:BT
GM-68D	732.46	732.27	NGVD 29	2	64	74	668.46	658.46	150	622327.6609	1484645.9882	LA:BT
GM-69	732.42	732.08	NGVD 29	2	90	100	642.42	632.42	140	621314.7862	1484401.5369	LA
GM-70	737.47	737.19	NGVD 29	2	72	82	665.47	655.47	120	621944.0698	1485505.8069	LA
GM-73	736.40	736.00	NAVD 88	2	85	95	651.40	641.40	120	622641.7113	1485199.4184	LA
GM-74D	732.49	732.04	NGVD 29	2	69	79	663.49	653.49	120	622450.1864	1484735.5674	LA:BT
GM-75D	737.10	736.65	NAVD 88	2	85	95	652.10	642.10	120	622799.4485	1485010.2344	LA
GM-76D	738.65	737.96	NAVD 88	2	70	80	668.65	658.65	120	623539.9404	1485295.2541	LA:BT
GM-77D	741.52	740.93	NGVD 29	2	75	85	666.52	656.52	100	621574.2863	1485889.4242	LA:BT
GM-82	732.55	732.14	NGVD 29	2	85	95	647.55	637.55	119.5	621972.7596	1484304.8749	LA
GM-83D	726.41	725.77	NGVD 29	2	110	120	616.41	606.41	120	622568.2473	1482120.4571	LA
GM-84	740.44	739.92	NGVD 29	2	96.5	106.5	643.94	633.94	120	620619.4733	1485522.2791	LA:BT
RMW-85[(7)]	736.01	735.62	NAVD 88	2	85	95	651.01	641.01	105	622913.9673	1484978.1501	LA
RMW-86[(7)]	728.85	729.22	NGVD 29	2	70	80	658.85	648.85	105	620409.8729	1483253.3868	LA:BT
RMW-87[(7)]	727.69	728.01	NGVD 29	2	67	77	660.69	650.69	100	621671.7643	1483277.4885	LA:BT
RMW-88	735.824	738.00	NAVD 88	2	90	100	645.824	635.824	100	623617.9875	1484203.4942	LA

Table 4
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation ft amsl	TOC Elevation ft amsl	Vertical Datum Used	Well Diameter inches	Screened Interval ft bls	Screened Interval ft bls	Screened Interval ft amsl	Screened Interval ft amsl	Borehole Depth ft bls	State Plane Coordinates Northing, y	State Plane Coordinates Easting, x	Geologic Modifiers
Lower Aquifer Wells												
HR-12	741.00	742.64	NGVD 29	4	120	130	621.00	611.00	130	625702.4754	1485249.9932	LA
HR-13	735.82	738.00	NAVD 88	4	75	85	660.82	650.82	85	625052.3203	1484580.6972	LA:BT
HR-14	729.90	731.63	NGVD 29	4	78	88	651.90	641.90	88	623675.3334	1483782.3572	LA
HR-15	732.10	733.74	NGVD 29	4	88	98	644.10	634.10	98	623712.7728	1483595.9249	LA
M73C	NM	716.55	NGVD 29	NA	NA	NA	NA	NA	NA	618973.2997	1482114.3979	LA
MT69[8]	719.84	722.71	NGVD 29	8	NA	NA	NA	NA	158	617772.6174	1450654.7321	LA
MT576M	750.00	751.46	NGVD 29	5	NA	NA	NA	NA	114	622940.3172	1487799.5539	LA
MT596M[9]	759.18	757.73	NGVD 29	5	NA	NA	NA	NA	89	624057.1360	1488849.2693	LA
DN-13	724.09	726.04	NAVD 88	20	110	170	614.09	554.09	170	619198.8520	1482251.2180	LA
11B	744.50	742.56	NGVD 29	NA	NA	NA	NA	NA	158	622501.3482	1485799.8083	LA
A	NM	739.00	NGVD 29	20	155	205	NA	NA	205	624325.4355	1484805.8917	LA
31	NM	734.05	NGVD 29	20	90	122	NA	NA	122	623727.3341	1485049.1907	LA
34	NM	733.46	NGVD 29	20	107	140	NA	NA	140	622178.5003	1485017.7441	LA
39	NM	732.07	NGVD 29	20	117	142	NA	NA	145	623442.5209	1484987.4851	LA
44	733.91	734.62	NGVD 29	24	128	166	605.91	567.91	NA	624519.8827	1483988.9900	LA
FW-1A	NM	739.89	NGVD 29	24	105	166	NA	NA	169	625357.5225	1486090.4582	LA
FW-2	NM	737.48	NGVD 29	20	NA	150	NA	NA	160	622516.4881	1485616.5997	LA
FW-3	NM	739.26	NGVD 29	20	NA	141	NA	NA	200	622674.8976	1484968.9343	LA
FW-4	NM	731.62	NGVD 29	14	NA	136	NA	NA	160	620605.2151	1484338.1978	LA

NOTES:

Survey of well coordinates were originally to a site-specific coordinate system in feet with the vertical datum as the National Geodetic Vertical Datum of 1929 (NGVD 29) using an on-site benchmark.
Base map and well coordinates were converted in 2011 to the Ohio South State Plane coordinate system North American Datum of 1983 (NAD 83) and NGVD 29 was retained as the vertical datum.
In 2019 and 2020, several monitoring wells were re-surveyed using the North American Vertical Datum of 1988 (NAVD 88) and NAD 83.
TOC - Top of Casing.
ft amsl - feet above mean sea level.
ft bls - feet below land surface.
(1) - Ground surface elevation estimated based on a 2-foot height of outer casing stick-up.
(2) - Survey estimated.
(3) - Well flush mount damaged and obstructed at depth.
(4) - Depth of screened interval and total well depth have been modified from the well log due to site construction.
(5) - Well above grade construction damaged in 2011.
(6) - City of Moraine Monitoring Wells.
(7) - TOC elevation is calculated based on adjacent well elevations and field measurements on November 26, 2012.
(8) - Well unusable - collapsed screen.
(9) - Measuring point is top of cement housing.

BT - Below Till (regional clay till).
LA - Lower Aquifer.
NA - Not Available.
NM - Not Measured.
NTP - No Till Present.
TT - Top of Till (regional clay till).
TUT - Top of Upper Till (upper clay till).
UA - Upper Aquifer.
WT - Water Table (screened across the water table interface).

Table 5
Groundwater Level Measurements Collected During 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Measuring Point Elevation (feet AMSL)	Date	Depth-to-Water (feet)	Total Depth (feet)	Groundwater or Surface Water Elevation (feet AMSL)	Survey Datum Used
Upper Aquifer Wells						
GM-02	734.76	7/27/2020	27.15	56.30	707.61	NAVD 88
GM-02	734.76	8/24/2020	27.48	56.30	707.28	NAVD 88
GM-06	729.24	7/27/2020	22.14	46.30	707.10	NAVD 88
GM-08	734.40	7/27/2020	27.03	50.00	707.37	NAVD 88
GM-10	723.90	7/27/2020	16.09	50.20	707.81	NGVD 29
GM-16	724.29	7/27/2020	17.59	58.00	706.70	NAVD 88
GM-17	722.79	7/27/2020	15.83	50.05	706.96	NAVD 88
GM-18	722.71	7/27/2020	15.97	54.86	706.74	NAVD 88
GM-19S	729.72	7/27/2020	22.09	57.00	707.63	NAVD 88
GM-19S	729.72	8/24/2020	22.43	57.00	707.29	NAVD 88
GM-34	729.27	7/27/2020	21.52	35.25	707.75	NAVD 88
GM-34	729.27	8/24/2020	21.80	35.25	707.47	NAVD 88
GM-45	728.13	7/27/2020	19.34	60.00	708.79	NAVD 88
GM-45	728.13	8/24/2020	20.58	60.00	707.55	NAVD 88
GM-47	725.81	7/27/2020	18.80	59.40	707.01	NAVD 88
GM-48	727.68	7/27/2020	21.33	73.02	706.35	NAVD 88
GM-49	726.99	7/27/2020	20.90	76.29	706.09	NAVD 88
GM-50	725.62	7/27/2020	18.65	39.50	706.97	NAVD 88
GM-51	727.45	7/27/2020	21.10	44.20	706.35	NAVD 88
GM-52	726.67	7/27/2020	20.59	44.00	706.08	NAVD 88
GM-63	724.86	7/27/2020	17.67	39.10	707.19	NAVD 88
GM-63	724.86	7/28/2020	17.64	39.10	707.22	NAVD 88
GM-63	724.86	8/24/2020	17.89	39.10	706.97	NAVD 88
GM-64	725.04	7/28/2020	17.64	60.00	707.40	NAVD 88
GM-64	725.04	8/24/2020	17.94	60.00	707.10	NAVD 88
HR-01	732.71	7/29/2020	23.52	57.00	709.19	NAVD 88
HR-04	742.60	7/29/2020	32.30	66.80	710.30	NGVD 29
HR-16	726.02	7/27/2020	18.65	67.00	707.37	NAVD 88
HR-16	726.02	8/24/2020	18.84	67.00	707.18	NAVD 88
HR-17	725.42	7/27/2020	18.71	59.55	706.71	NAVD 88
HR-17	725.42	7/29/2020	17.68	59.55	707.74	NAVD 88
HR-17	725.42	8/24/2020	17.90	59.55	707.52	NAVD 88
RMW-100	723.58	7/27/2020	16.60	50.00	706.98	NAVD 88
RMW-101	723.47	7/27/2020	16.42	53.00	707.05	NAVD 88
RMW-102	723.98	7/27/2020	17.33	25.00	706.65	NAVD 88
RMW-91	725.50	7/27/2020	18.34	57.00	707.16	NAVD 88
RMW-91	725.50	7/28/2020	18.18	57.00	707.32	NAVD 88
RMW-91	725.50	8/24/2020	18.59	57.00	706.91	NAVD 88
RMW-92	725.92	7/27/2020	18.63	38.00	707.29	NAVD 88
RMW-92	725.92	7/28/2020	18.48	38.00	707.44	NAVD 88
RMW-92	725.92	8/24/2020	18.89	38.00	707.03	NAVD 88
RMW-93	727.56	7/27/2020	20.44	40.00	707.12	NAVD 88
RMW-93	727.56	7/28/2020	20.45	40.00	707.11	NAVD 88
RMW-93	727.56	8/24/2020	20.70	40.00	706.86	NAVD 88
RMW-94	727.53	7/27/2020	20.39	40.00	707.14	NAVD 88
RMW-94	727.53	7/28/2020	20.41	40.00	707.12	NAVD 88
RMW-94	727.53	8/24/2020	20.62	40.00	706.91	NAVD 88
RMW-98	725.10	7/27/2020	18.56	62.00	706.54	NAVD 88
RMW-99	724.95	7/27/2020	18.35	35.00	706.60	NAVD 88
W-2-N	731.68	7/29/2020	21.88	60.00	709.80	NGVD 29
W-2-S	725.66	7/27/2020	18.75	67.00	706.91	NAVD 88
W-2-S	725.66	7/29/2020	18.70	67.00	706.96	NAVD 88
W-2-S	725.66	8/24/2020	18.95	67.00	706.71	NAVD 88
W-3-N	733.66	7/29/2020	23.82	57.00	709.84	NGVD 29
W-3-S	728.16	7/27/2020	21.15	76.40	707.01	NAVD 88
W-3-S	728.16	7/29/2020	21.12	76.40	707.04	NAVD 88
W-3-S	728.16	8/24/2020	21.35	76.40	706.81	NAVD 88
W-4-N	731.63	7/29/2020	21.68	65.00	709.95	NGVD 29
W-4-S	726.76	7/27/2020	18.41	72.50	708.35	NAVD 88
W-4-S	726.76	7/29/2020	19.47	72.50	707.29	NAVD 88
W-4-S	726.76	8/24/2020	19.66	72.50	707.10	NAVD 88
WEST	729.96	7/27/2020	22.26	51.40	707.70	NAVD 88
WEST	729.96	8/24/2020	22.52	51.40	707.44	NAVD 88
WSU-23	724.00	7/28/2020	17.09	57.40	706.91	NAVD 88
WSU-23	724.00	8/24/2020	17.34	57.40	706.66	NAVD 88
Lower Aquifer Wells						
GM-01	735.74	7/27/2020	27.31	103.40	708.43	NGVD 29
GM-05	731.29	7/27/2020	23.28	102.00	708.01	NGVD 29
GM-09	724.07	7/27/2020	16.51	99.60	707.56	NGVD 29
GM-11	723.71	7/27/2020	16.23	99.20	707.48	NGVD 29
GM-13	722.78	7/27/2020	16.71	100.10	706.07	NGVD 29
GM-14	722.46	7/27/2020	16.49	150.00	705.97	NGVD 29
GM-15	724.46	7/27/2020	18.45	98.90	706.01	NGVD 29
GM-20D	727.26	7/27/2020	18.70	100.80	708.56	NGVD 29
M73C	716.55	7/27/2020	9.51	NM	707.04	NGVD 29
IRZ Wells						
RZ-4A	724.75	7/27/2020	16.97	55.10	707.78	NAVD 88
RZ-4L	726.56	7/27/2020	19.13	62.50	707.43	NAVD 88
RZ-4O	725.48	7/27/2020	17.92	60.50	707.56	NAVD 88

NOTES:

Elevations are reported in feet above mean sea level (AMSL).

Groundwater levels were measured on July 27 through July 29 and August 24, 2020 using electronic water level indicators.

Groundwater level measurements are reported in feet below the measuring point.

Measuring point is the top of the well casing or surveyed measuring point.

NA - Not Applicable.

NM - Not Measured.

Survey of well coordinates were originally to a site-specific coordinate system in feet with the vertical datum as the National Geodetic Vertical Datum of 1929 (NGVD 29) using an on-site benchmark. In 2019 several monitoring wells were re-surveyed using the North American Vertical Datum of 1988 (NAVD 88).

Table 6
Vertical Hydraulic Gradients for 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Vertical Hydraulic Gradients - 2020			
Upper/Lower Aquifer Wells[1]	**Mid-Screen Distance (ft)**	**Direction (U/D)**	**Gradient**
Off-Site/Downgradient - DN-13 Area - July 27, 2020			
GM-10 (707.81 ft amsl) / GM-9 (707.56 ft amsl)	50	D	5.0E-03
GM-16 (707.71 ft amsl) / GM-15 (706.01 ft amsl)	42	D	4.0E-02
GM-18 (707.83 ft amsl) / GM-13 (706.07 ft amsl)	45	D	3.9E-02
GM-17 (708.01 ft amsl) / GM-11 (707.48 ft amsl)	50	D	1.1E-02
Shallow/Deep Upper Aquifer Wells[2]	**Mid-Screen Distance (ft)**	**Direction (U/D)**	**Gradient**
On-Site - Phase 1 Extraction Well Area - July 27, 2020			
RMW-92 (707.29 ft amsl) / RMW-91 (707.16 ft amsl)	20	D	6.7E-03

NOTES:

U - Upward vertical hydraulic gradient.

D - Downward vertical hydraulic gradient.

amsl - above mean sea level.

ft - feet.

The vertical datum for Off-site/Downgradient wells is NGVD 29.

The vertical datum for Shallow/Deep Upper Aquifer wells is NAVD 88.

1 - vertical gradient is calculated using Upper Aquifer and Lower Aquifer well pair.

2 - vertical gradient is calculated using shallow Upper Aquifer and deep Upper Aquifer well pair.

Table 7
Focused Off-Site Vapor Intrusion Groundwater Screening Results
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	Vapor Intrusion Screening Levels (ug/L)[1,2]	RMW-95 7/30/2020	RMW-96 7/30/2020	RMW-97 7/30/2020	GM-80 7/30/2020
Site-Specific Volatile Organic Compounds						
1,1,1-Trichloroethane	ug/L	13,600	0.48 J	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	135	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/L	320	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	29.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	NL	< 1.0 U	< 1.0 U	< 1.0 U	0.92 J
Ethylbenzene	ug/L	77.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	122	8.4	2.7	3.3	12
Toluene	ug/L	39,200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	191	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	9.9	1.2	< 1.0 U	< 1.0 U	2
Vinyl chloride	ug/L	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Xylene (total)	ug/L	856	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		10	2.7	3.3	15

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above screening level.
ug/L - Micrograms per Liter.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
B - Compound was found in the blank and sample.
NL - No screening level.
1. The data were screened against the most conservative Ohio EPA screening level; if no value was available, the U.S. EPA site-specific vapor intrusion level was used.
2. USEPA Vapor Intrusion Screening Levels were used to calculate target residential screening levels for groundwater concentration based a site-specific groundwater temperature of 11 degrees celsius and the lower of either a target cancer risk of 1E-05 or a target hazard index of 1 (per Ohio EPA Sample Collection and Evaluation of Vapor Intrusion to Indoor Air Guidance, March 2020). Screening levels assume 26 year exposure duration, 350 days per year, 24 hours per day.

Table 8
Proposed Groundwater Monitoring Program for 2021
RACER Trust Moraine Facilities
Moraine, Ohio

Off-Site Downgradient Monitoring Wells Upgradient of Miami Shores Neighborhood (Annual)

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1]:

GM-80	RMW-95	RMW-96	RMW-97

Off-Site DN-13 Capture Zone Performance Monitoring Wells (Annual)

Lower aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1]:

DN-13	GM-9	GM-15	GM-20D

In-Situ Reactive Zone Performance Monitoring Wells – (Annual)

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1] and biogeochemical parameters[2]:

GM-2[3]	GM-6	GM-8	GM-19S
GM-21	GM-32	GM-17[4]	WSU-24[4]

Closed North and South Settling Lagoon Monitoring Wells (Annual)

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1]:

HR-4	W-2-N	W-3-N	W-4-N
HR-17	W-2-S	W-3-S	W-4-S

Phase I DGR™ Performance Monitoring Wells (Semi-Annual)

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1]:

HR-16	GM-64	RMW-92	RMW-93	HR-17	W-3-S
GM-63	RMW-91	WSU-23	RMW-94	W-2-S	W-4-S

Phase I DGR™ Performance Monitoring Wells (Annual)

Upper aquifer monitoring wells[5] to be analyzed for the site-specific list of VOCs[1]:

HR-16	GM-48	GM-63	RMW-92	RMW-98	RMW-101
GM-16	GM-50	GM-64	RMW-93	RMW-99	RMW-102
GM-47	GM-51	RMW-91	RMW-94	RMW-100	WSU-23

Groundwater Monitoring Upgradient of IRZ-3 West (Annual)

Upper aquifer monitoring wells to be analyzed for the site-specific list of VOCs[1]:

GM-35	GM-36	GM-37
GM-38	EAST	WEST

Analytical Methods

Parameter	Analytical Method
Site-specific list of VOCs	SW846 8260B
Total organic carbon	SW846 9060
Ethane, ethene, methane	AM20GAX

Table 8
Proposed Groundwater Monitoring Program for 2021
RACER Trust Moraine Facilities
Moraine, Ohio

NOTES:

1 – Site-specific list of VOCs for 2021 includes: benzene, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, ethylbenzene, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride, and xylenes.

2 – Biogeochemical parameters include: total organic carbon (TOC), ethane, ethene, and methane.

3 – Monitoring well GM-2 is located further downgradient from IRZ-3 East. Sampled since 2019 to support performance verification.

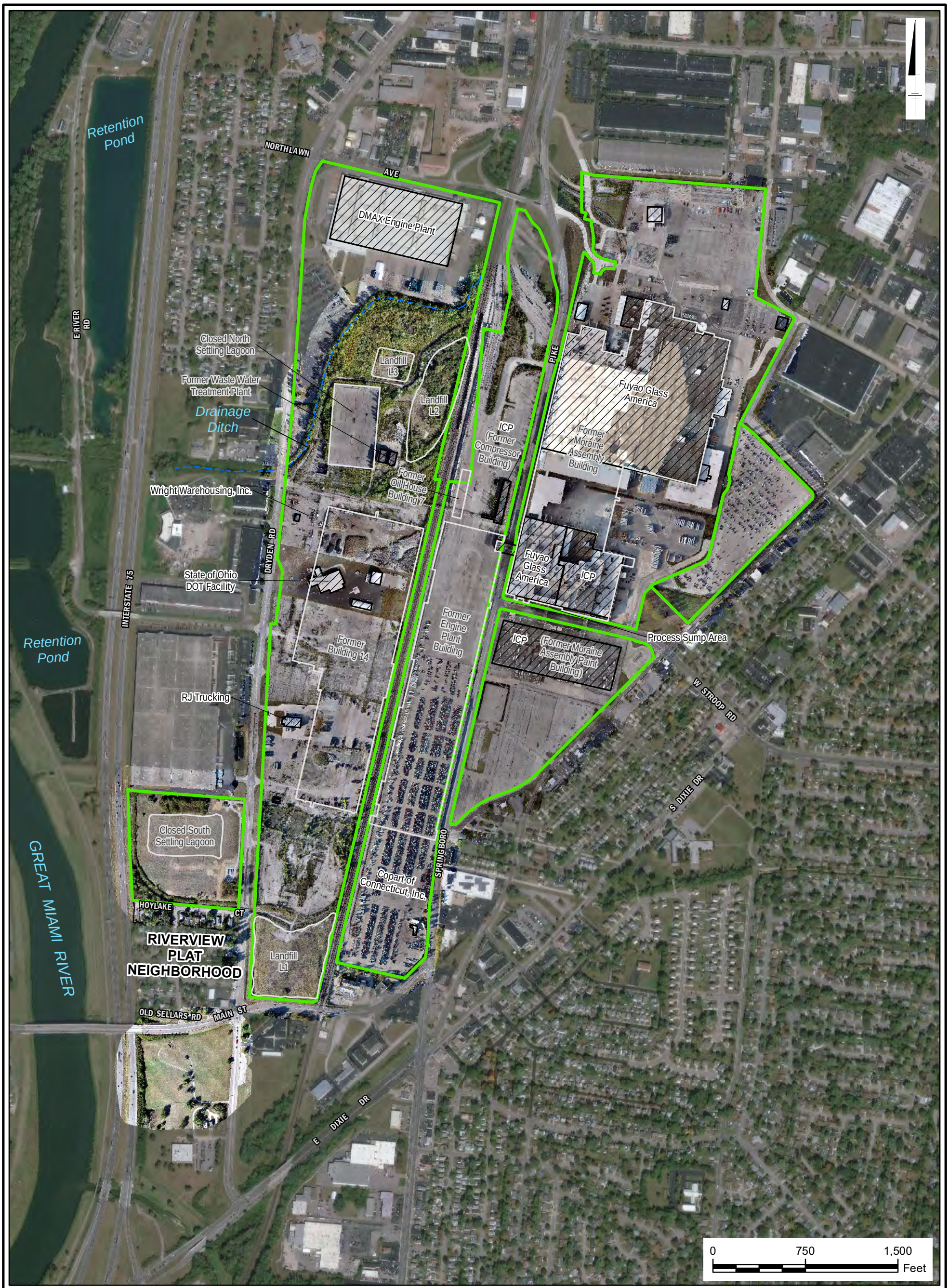
4 – GM-17 and WSU-24 to be analyzed for site-specific VOCs only.

5 – Includes monitoring wells HR-17, W-2-S, W-3-S, W-4-S, and GM-19S.

Field parameters collected at all monitoring wells (pH, specific conductivity, dissolved oxygen, oxidation reduction potential, and temperature)

Figures

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LEGEND

- DRAINAGE DITCH
- FORMER BUILDING/SITE FEATURE
- CURRENT BUILDING
- PROPERTY BOUNDARY

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source: DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/1/2021.

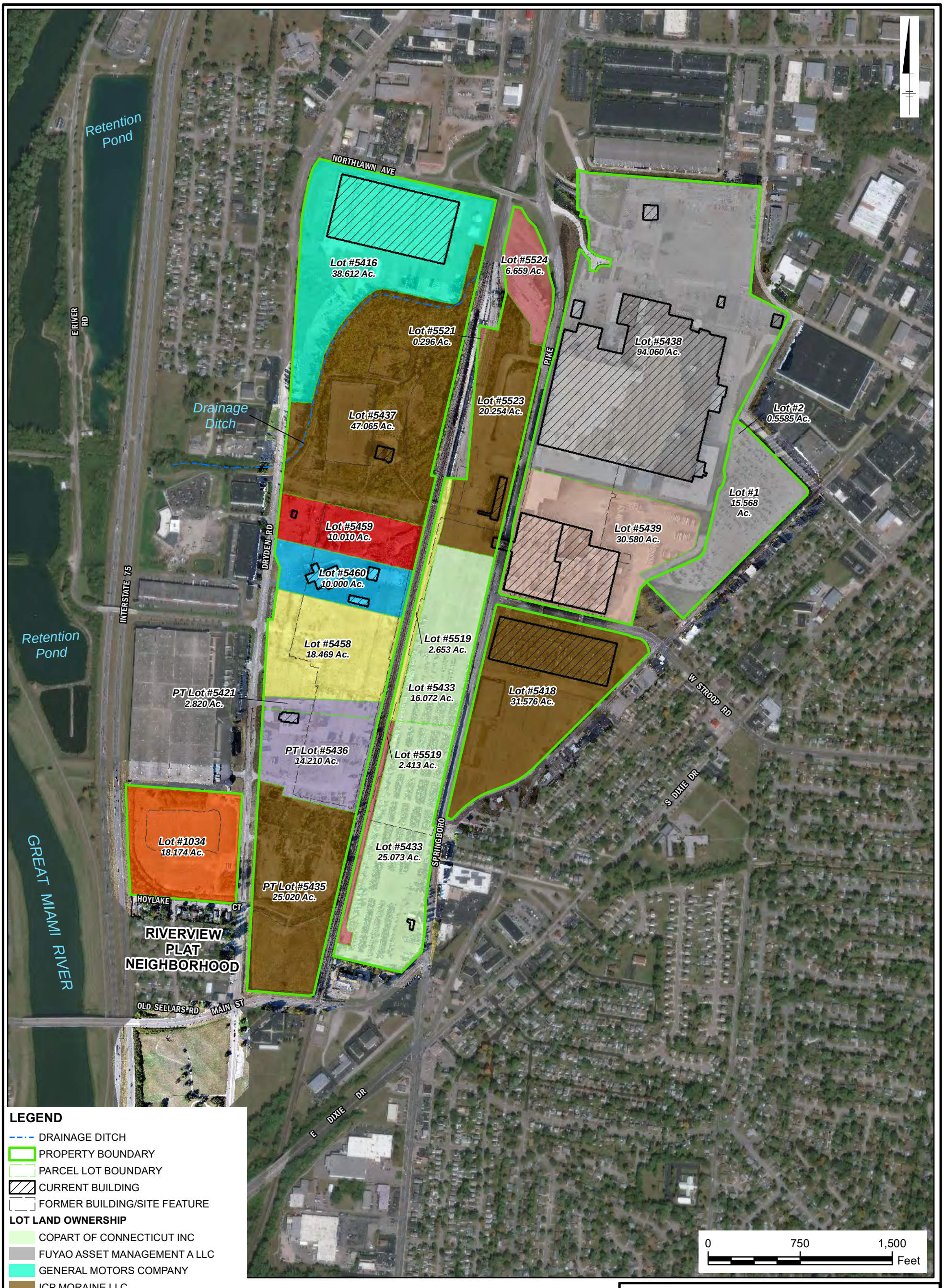
RACER TRUST
MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

SITE LAYOUT

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FIGURE 1

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LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- PARCEL LOT BOUNDARY
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE

LOT LAND OWNERSHIP

- COPART OF CONNECTICUT INC
- FUYAO ASSET MANAGEMENT A LLC
- GENERAL MOTORS COMPANY
- ICP MORAINE LLC
- ICP MORAINE SPE LLC AND IRG MORAINE SPE LLC
- INLAND PROPERTY MANAGEMENT INC
- IRG MORAINE LLC
- NORFOLK SOUTHERN RAILWAY FKA CONSOLIDATED RAIL CORPORATION
- RACER PROPERTIES LLC
- STATE OF OHIO
- WRIGHT WAREHOUSING INC.

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source: DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/1/2021.
3. Lot information was checked on 01/29/2020 at http://engineer.gomvo.org/apps/landrecords/.
4. Ac. = Acres

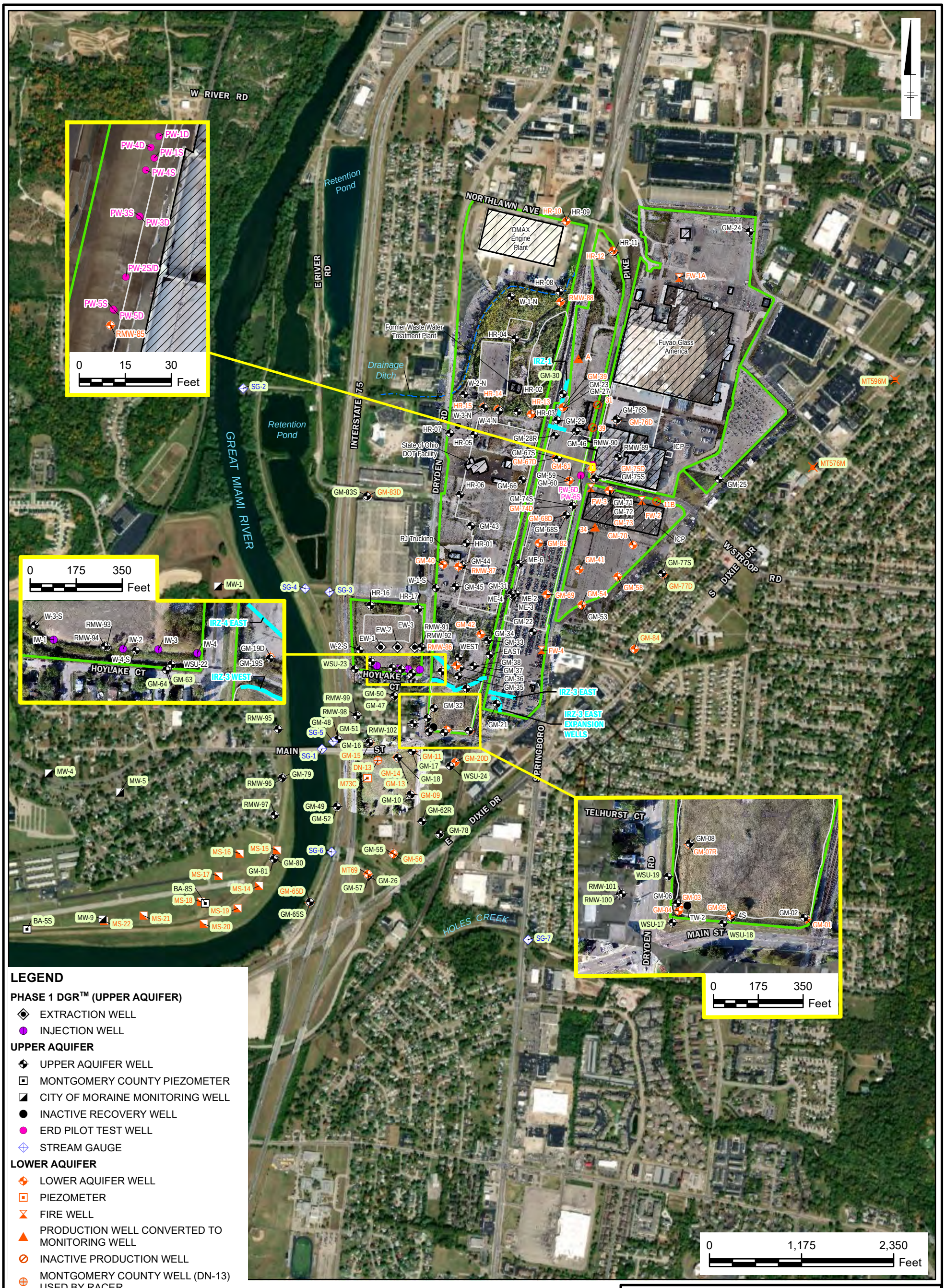
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2020 GROUNDWATER MONITORING REPORT

SITE PARCEL MAP

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FIGURE 2

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LEGEND

PHASE 1 DGR™ (UPPER AQUIFER)

- EXTRACTION WELL
- INJECTION WELL

UPPER AQUIFER

- UPPER AQUIFER WELL
- MONTGOMERY COUNTY PIEZOMETER
- CITY OF MORAINE MONITORING WELL
- INACTIVE RECOVERY WELL
- ERD PILOT TEST WELL
- STREAM GAUGE

LOWER AQUIFER

- LOWER AQUIFER WELL
- PIEZOMETER
- FIRE WELL
- PRODUCTION WELL CONVERTED TO MONITORING WELL
- INACTIVE PRODUCTION WELL
- MONTGOMERY COUNTY WELL (DN-13) USED BY RACER
- MONTGOMERY COUNTY WELL (INACTIVE)
- PRIVATE WELL
- CARBON SOURCE INTRODUCTION WELLS, REACTIVE ZONES
- DRAINAGE DITCH
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/15/2021.
3. Parcel data downloaded on 01/22/2020 from http://www.mcauditor.org/downloads/gis_downloads.cfm/.
4. Olive-shaded labels indicate offsite wells.

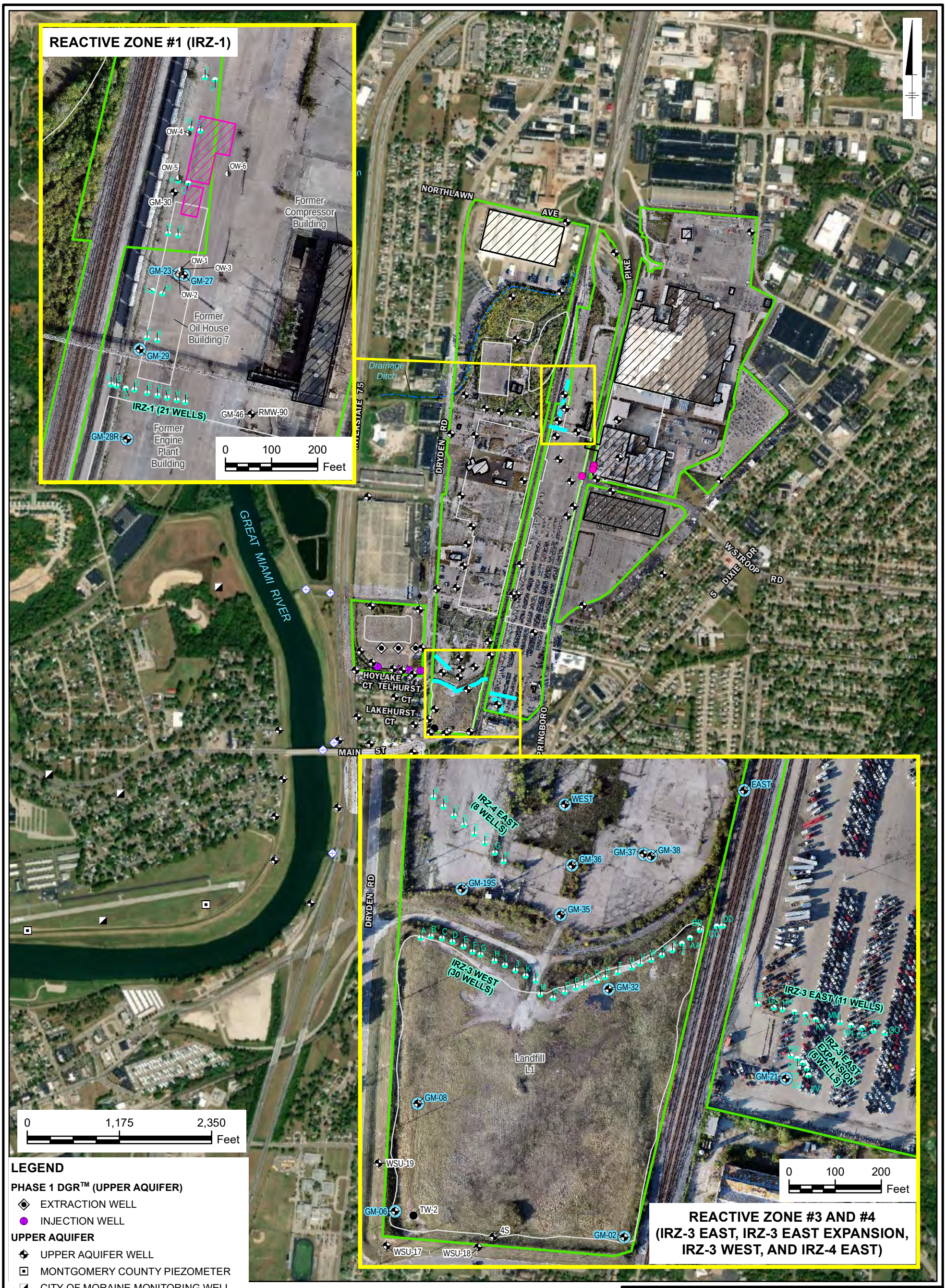
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MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

SITE-WIDE CORRECTIVE MEASURES

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FIGURE 3

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LEGEND

PHASE 1 DGR™ (UPPER AQUIFER)
- EXTRACTION WELL
- INJECTION WELL

UPPER AQUIFER
- UPPER AQUIFER WELL
- MONTGOMERY COUNTY PIEZOMETER
- CITY OF MORAINE MONITORING WELL
- INACTIVE RECOVERY WELL
- ERD PILOT TEST WELL
- STREAM GAUGE
- CARBON SOURCE INTRODUCTION WELLS, REACTIVE ZONES
- DRAINAGE DITCH
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY

ADDITIONAL LEGEND IN INSETS
- OXIDATION WELL (INACTIVE)
- CARBON SOURCE INTRODUCTION WELL
- UPPER AQUIFER MONITORING WELL SAMPLED IN 2020
- APPROXIMATE LOCATION OF FORMER MORAINE ENGINE TANK FARM

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/15/2021.

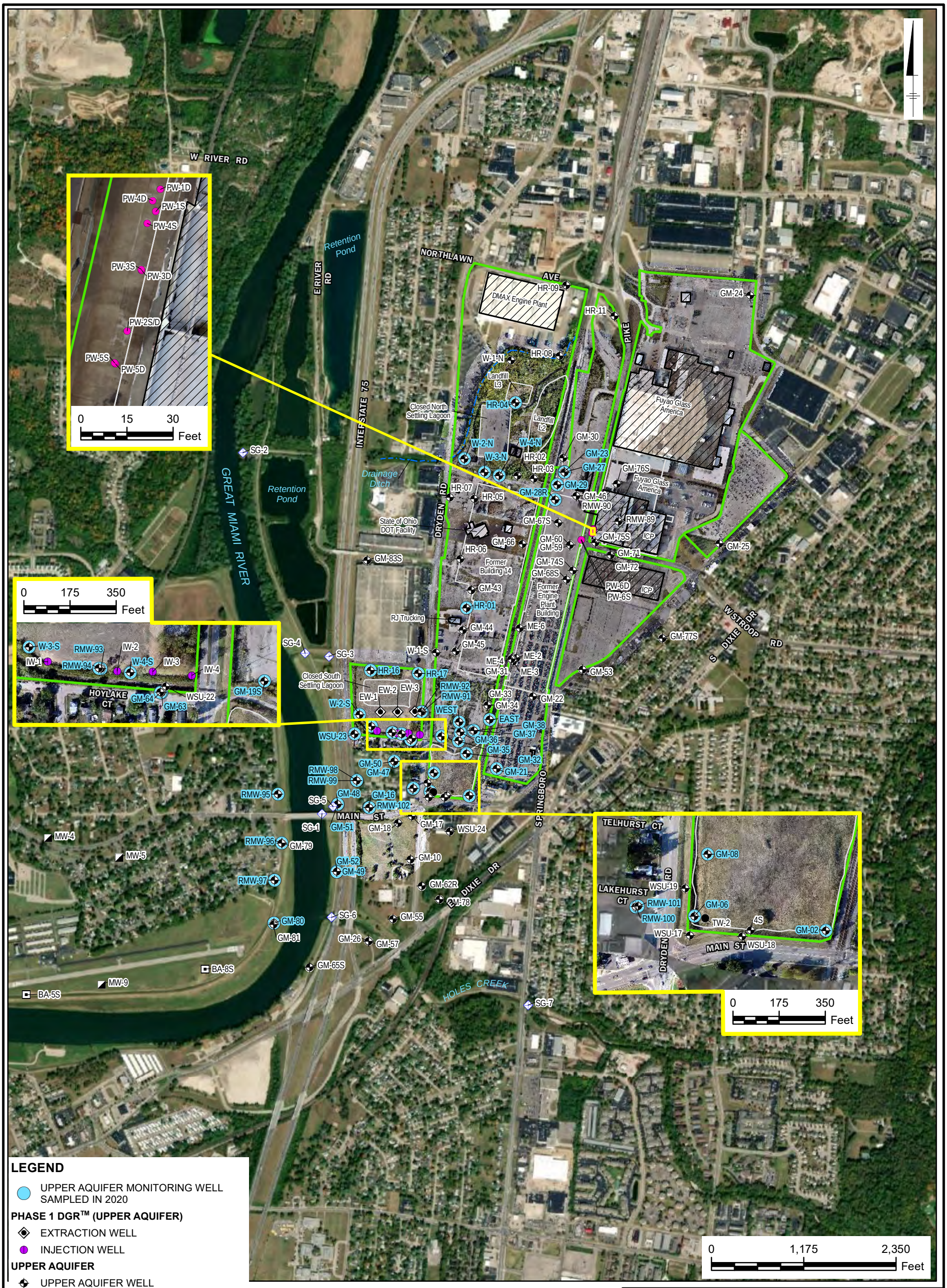
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MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

UPPER AQUIFER REACTIVE ZONES

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FIGURE 4

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LEGEND

- UPPER AQUIFER MONITORING WELL SAMPLED IN 2020

PHASE 1 DGR™ (UPPER AQUIFER)

- EXTRACTION WELL
- INJECTION WELL

UPPER AQUIFER

- UPPER AQUIFER WELL
- MONTGOMERY COUNTY PIEZOMETER
- CITY OF MORAINE MONITORING WELL
- INACTIVE RECOVERY WELL
- ERD PILOT TEST WELL
- STREAM GAUGE
- DRAINAGE DITCH
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/15/2021.

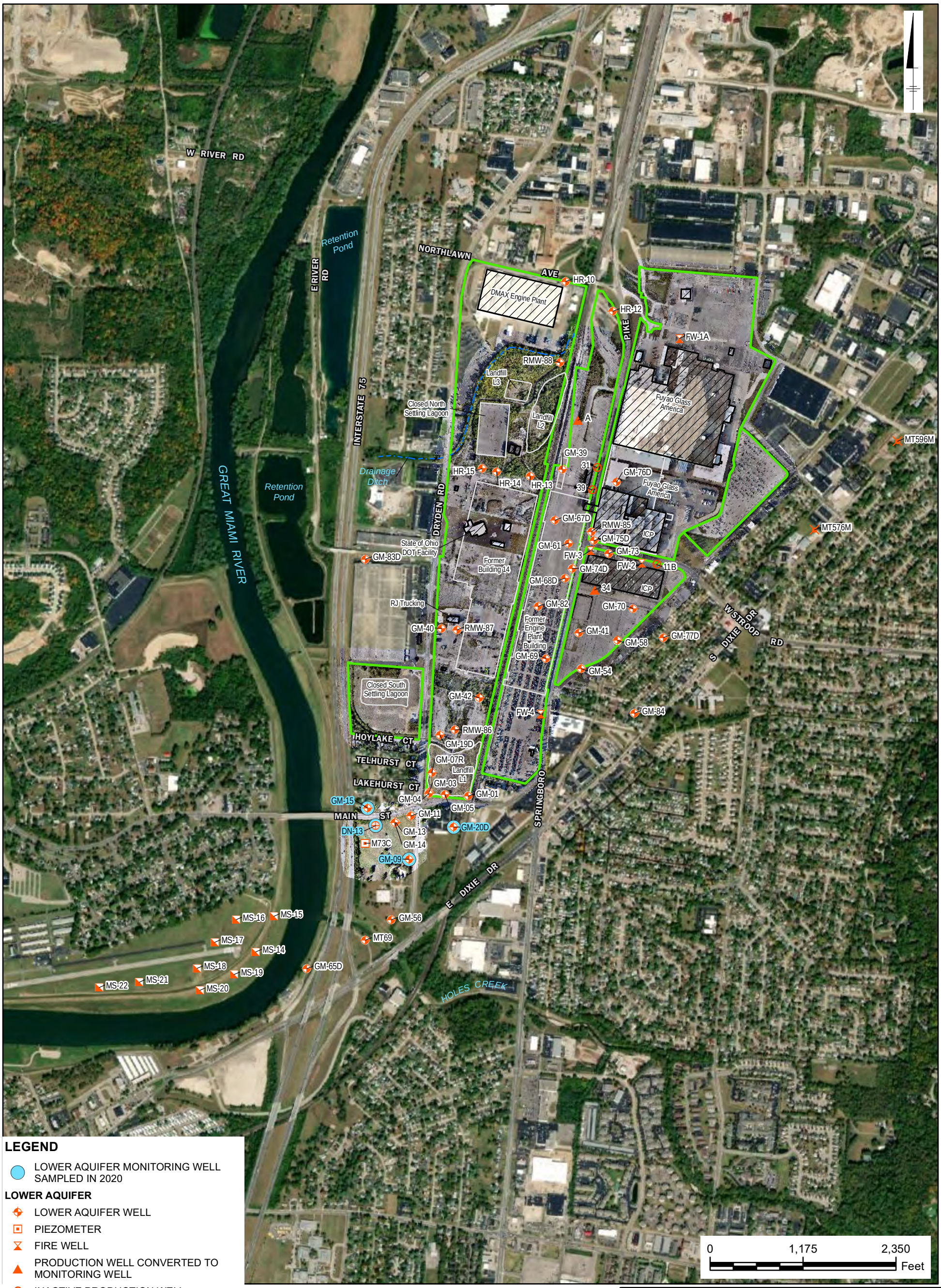
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2020 GROUNDWATER MONITORING REPORT

UPPER AQUIFER MONITORING WELLS FOR GROUNDWATER MONITORING

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FIGURE 5

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LEGEND

- LOWER AQUIFER MONITORING WELL SAMPLED IN 2020

LOWER AQUIFER

- LOWER AQUIFER WELL
- PIEZOMETER
- FIRE WELL
- PRODUCTION WELL CONVERTED TO MONITORING WELL
- INACTIVE PRODUCTION WELL
- MONTGOMERY COUNTY WELL (DN-13) USED BY RACER
- MONTGOMERY COUNTY WELL (INACTIVE)
- PRIVATE WELL
- DRAINAGE DITCH
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/1/2021.

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2020 GROUNDWATER MONITORING REPORT

LOWER AQUIFER MONITORING WELLS FOR GROUNDWATER MONITORING

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FIGURE 6

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LEGEND

- UPPER AQUIFER WELL
- DRAINAGE DITCH
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY
- GROUNDWATER FLOW DIRECTION
- POTENTIOMETRIC CONTOUR (FEET AMSL, DASHED WHERE INFERRED)

W-4-N — WELL IDENTIFIER
709.95 — GROUNDWATER ELEVATION (FEET AMSL)

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/15/2021.
3. Groundwater elevations were measured on July 29, 2020.
4. AMSL = Above Mean Sea Level

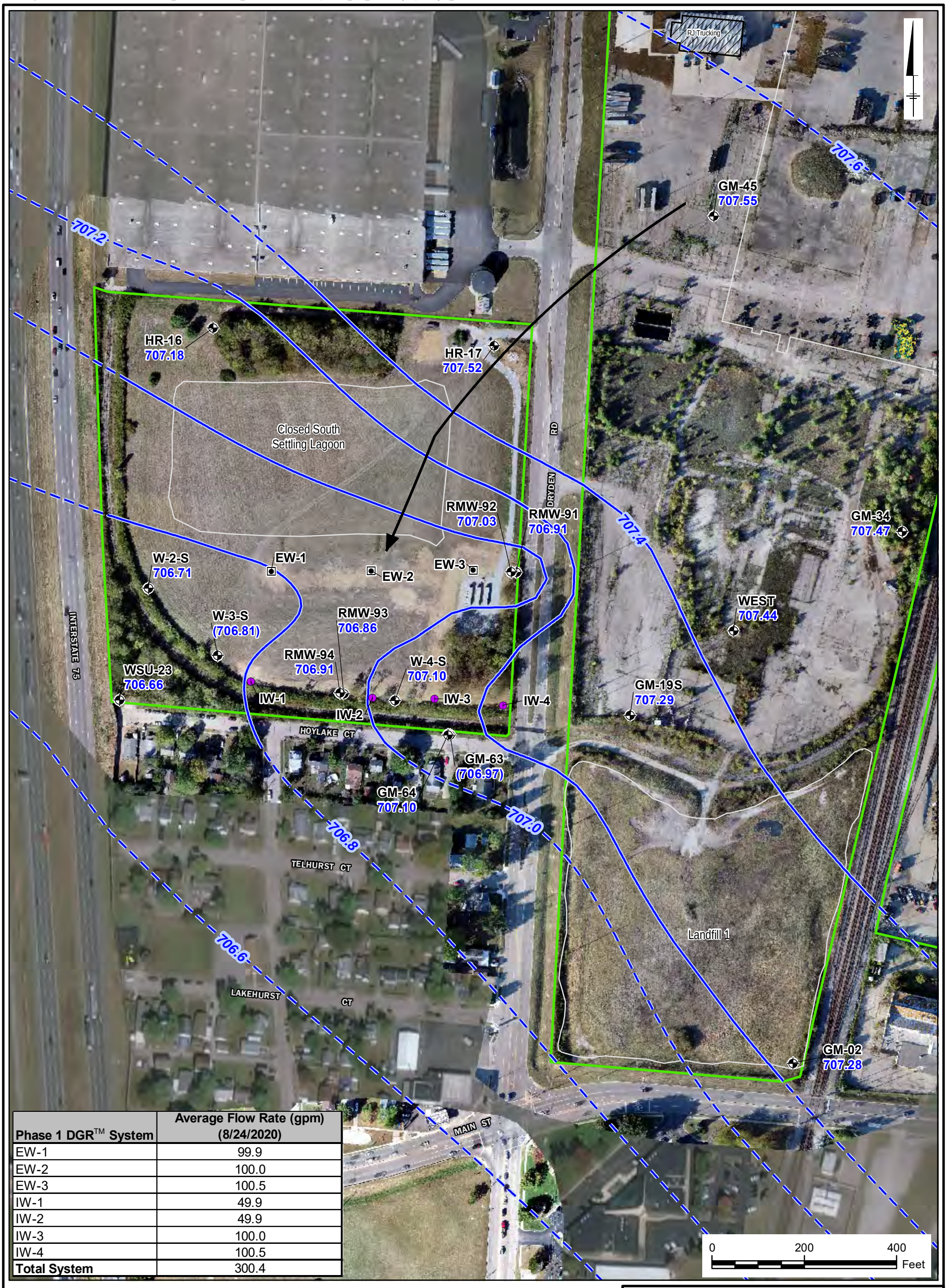
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MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

CLOSED NORTH SETTLING LAGOON
UPPER AQUIFER
POTENTIOMETRIC SURFACE MAP

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FIGURE
7

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Phase 1 DGR™ System	Average Flow Rate (gpm) (8/24/2020)
EW-1	99.9
EW-2	100.0
EW-3	100.5
IW-1	49.9
IW-2	49.9
IW-3	100.0
IW-4	100.5
Total System	300.4

LEGEND

PHASE 1 DGR™ (UPPER AQUIFER)
- EXTRACTION WELL
- INJECTION WELL

UPPER AQUIFER
- UPPER AQUIFER WELL
- GROUNDWATER FLOW DIRECTION
- POTENTIOMETRIC CONTOUR (FEET AMSL, DASHED WHERE INFERRED)
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY
- GM-02 — WELL IDENTIFIER
- 707.28 — GROUNDWATER ELEVATION (FEET AMSL)

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/17/2021.
3. Groundwater elevations were measured on August 24, 2020.
4. AMSL = Above Mean Sea Level
5. ( ) = not used in contouring

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2020 GROUNDWATER MONITORING REPORT

GROUNDWATER POTENTIOMETRIC SURFACE FOR PHASE 1 DGR™ AREA

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FIGURE 8

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LEGEND

- MONTGOMERY COUNTY WELL USED BY RACER: DN-13
- LOWER AQUIFER WELL
- PIEZOMETER
- GROUNDWATER FLOW DIRECTION
- POTENTIOMETRIC CONTOUR (FEET AMSL, DASHED WHERE INFERRED)
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY
- ESTIMATED CONE OF DEPRESSION - INDIVIDUAL CONTOURS NOT SHOWN

GM-09 — WELL IDENTIFIER
707.56 — GROUNDWATER ELEVATION (FEET AMSL)

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/15/2021.
3. Groundwater elevations were measured on July 27, 2020.
4. AMSL = Above Mean Sea Level
5. **ON** designates DN-13 operational at a flow rate of 736 gpm.
6. gpm = Gallons per Minute

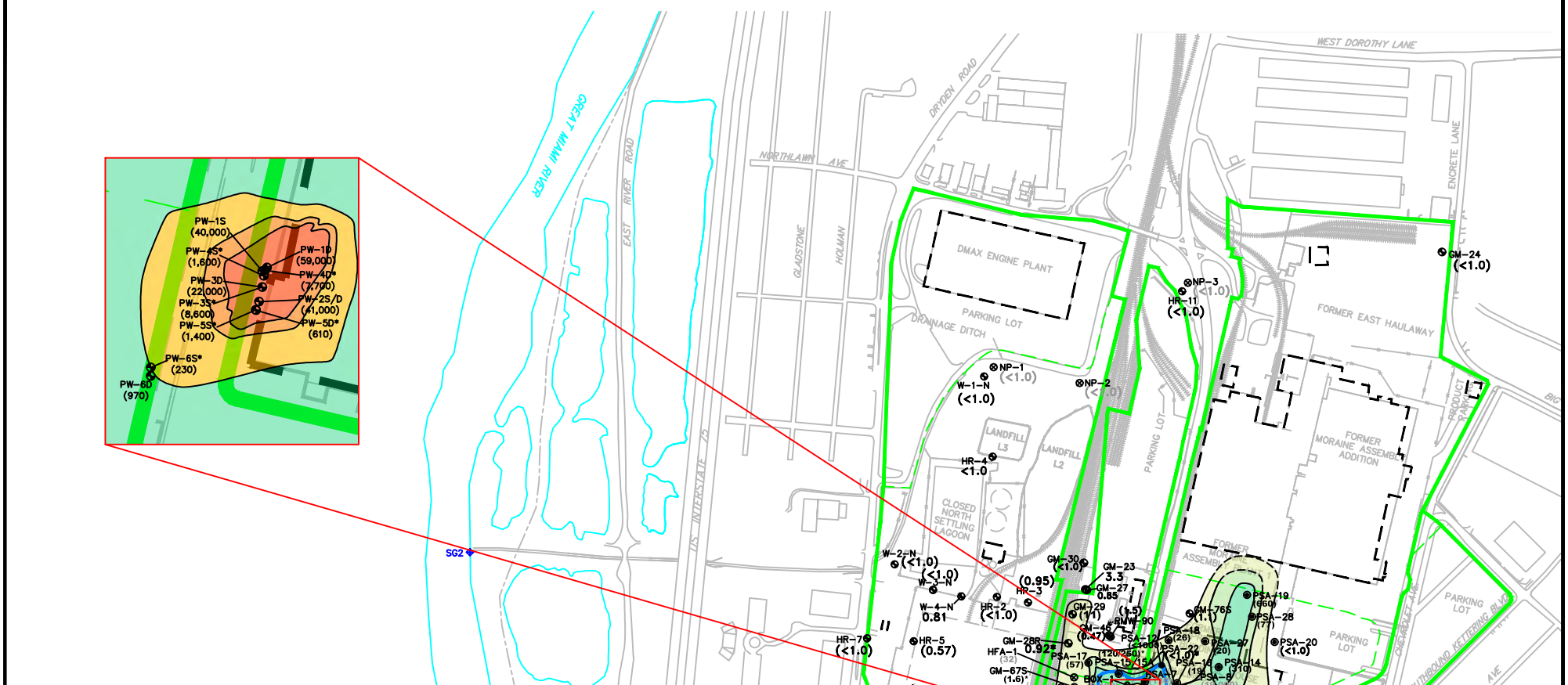
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MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

DN-13 AREA LOWER AQUIFER POTENTIOMETRIC SURFACE MAP

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FIGURE 9

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bsmith\BIM 360\Arcadis\ANA - RACER TRUST\Project Files\RACER MORAINE OH\2021\01-DWG\0004B\PLUMES-UPPER 2021.dwg LAYOUT: UPPER PCE 2020 SAVED: 2/17/2021 10:53 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/18/2021 1:28 PM BY: SMITH, BOB



LEGEND

- MONITORING WELL (UPPER AQUIFER)
- INACTIVE EXTRACTION WELL (EW-1, EW-2, AND TW-2)
- STREAM GAUGE
- BORING LOCATION
- CITY OF MORAINE MONITORING WELL
- RIVER LEVEE
- FORMER BUILDING FOOTPRINT
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- ug/L — MICROGRAMS PER LITER
- <1.0 — CONSTITUENT NOT DETECTED ABOVE LABORATORY LIMIT SHOWN
- MCL — MAXIMUM CONTAMINANT LEVEL
- <1.0 — 2020 CONCENTRATIONS
- (<1.0) — 2019-2013 CONCENTRATIONS
- (<1.0) — PRE-2013 CONCENTRATIONS
- **BOLD** — CONCENTRATION EXCEEDS MCL
- * — DATA NOT USED FOR CONTOURING PURPOSES
- APPROXIMATE PCE EXTENT ABOVE VISL – 122 ug/L

- >10000 ug/L
- 5000-10000 ug/L
- 1000-5000 ug/L
- 100-1000 ug/L
- 50-100 ug/L
- 5-50 ug/L

NOTES:

1. CONCENTRATIONS POSTED REFLECT 2020 MONITORING WELL RESULTS, 2019 THROUGH 2013 MONITORING WELL RESULTS, PRE-2013 MONITORING WELL RESULTS, AND MAXIMUM CONCENTRATION FROM VERTICAL AQUIFER PROFILING FROM 2011 THROUGH 2015. THE INTERPRETATION OF THE ISOCONCENTRATION INCLUDES THE CONCEPTUAL SITE MODEL UNDERSTANDING (I.E. GROUNDWATER FLOW AND INTERIM MEASURES OPERATION).
2. WHEN SAMPLE RESULT IS NON-DETECT, HALF THE REPORTING LIMIT IS HONORED WITH THE CONTOURING.
3. RELATIVE UNDERSTANDING OF PRE-2013 CONCENTRATIONS (GRAY) WAS USED TO DEVELOP THE OVERALL PLUME GEOMETRY IN THE VICINITY OF THESE WELLS.
4. PCE VAPOR INTRUSION SCREENING LEVEL (VISL) WAS CALCULATED USING THE U.S. EPA VISL CALCULATOR AND BASED ON OHIO EPA DEFAULT GROUNDWATER TEMPERATURE OF 11°C. THE APPROXIMATE PCE GROUNDWATER CONCENTRATION EXTENT ABOVE VISL WAS INTERPRETED AND BIASED TO SHALLOWER SCREENED MONITORING WELLS OR SAMPLES.

SITE-SPECIFIC VOLATILE ORGANIC COMPOUNDS	MCL (ug/L)
1,1,1-Trichloroethane	200
1,1-Dichloroethane	--
1,1-Dichloroethene	7
Benzene	5
cis-1,2-Dichloroethene	70
Ethylbenzene	700
Tetrachloroethene	5
Toluene	1000
trans-1,2-Dichloroethene	100
Trichloroethene	5
Vinyl chloride	2
Xylene (total)	10,000

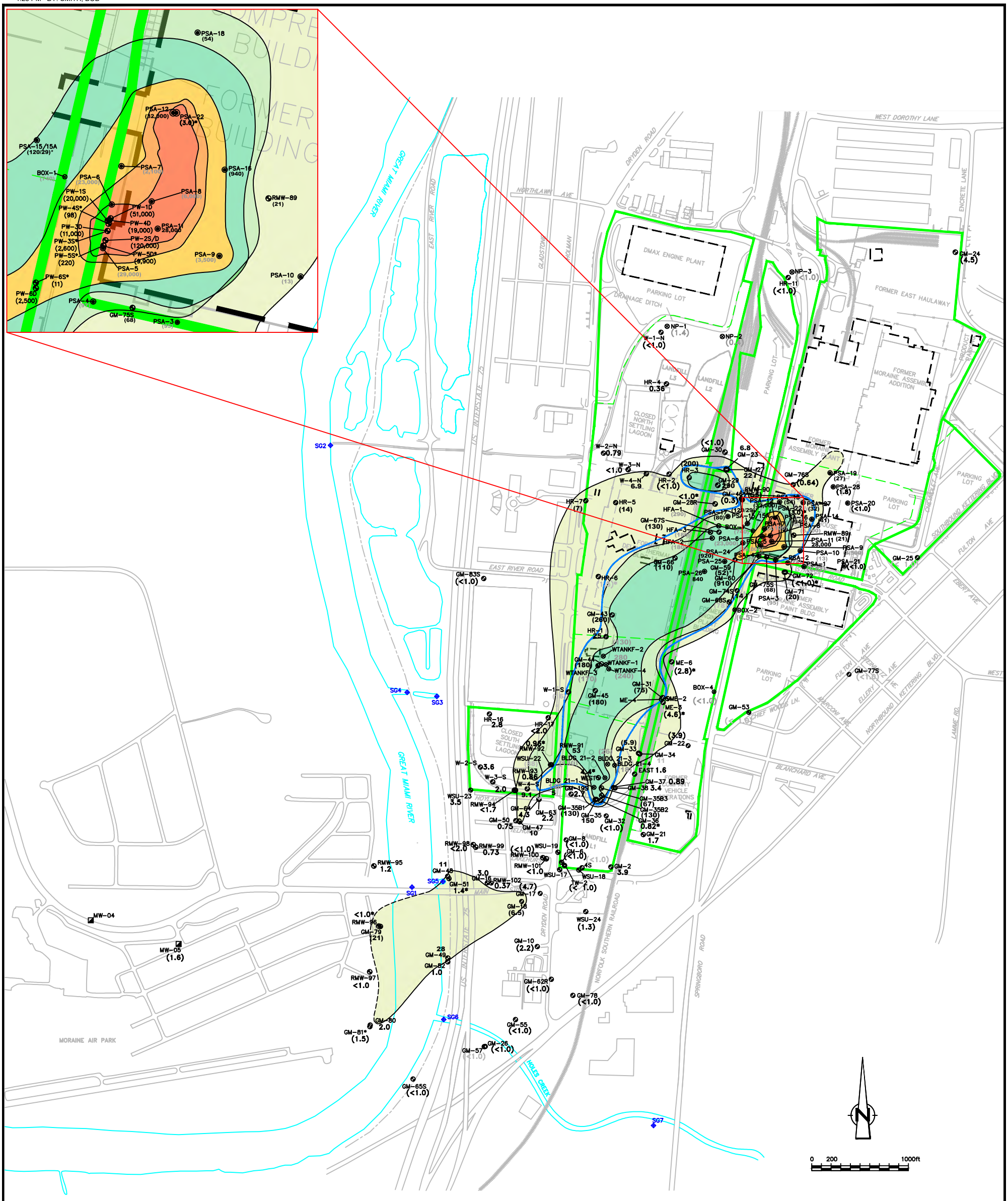
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MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

ISOCONCENTRATION MAP (UPPER AQUIFER) TETRACHLOROETHENE - 2020

ARCADIS

FIGURE 10

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bsmith\BIM 360\Arcadis\ANA - RACER TRUST\Project Files\RACER MORAINE OH\2021\01-DWG\0004B\PLUMES-UPPER 2021.dwg LAYOUT: UPPER TCE 2020 SAVED: 2/17/2021 10:53 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/18/2021 1:25 PM BY: SMITH, BOB



LEGEND

- MONITORING WELL (UPPER AQUIFER)
- INACTIVE EXTRACTION WELL (EW-1, EW-2, AND TW-2)
- STREAM GAUGE
- BORING LOCATION
- CITY OF MORAINE MONITORING WELL
- RIVER LEVEE
- FORMER BUILDING FOOTPRINT
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- ug/L — MICROGRAMS PER LITER
- <1.0 — CONSTITUENT NOT DETECTED ABOVE LABORATORY LIMIT SHOWN
- VISL — VAPOR INTRUSION SCREENING LEVEL
- <1.0 — 2020 CONCENTRATIONS
- (<1.0) — 2019–2013 CONCENTRATIONS
- (<1.0) — PRE–2013 CONCENTRATIONS
- **BOLD** — CONCENTRATION EXCEEDS SCREENING LEVEL
- * — DATA NOT USED FOR CONTOURING PURPOSES
- APPROXIMATE TCE EXTENT ABOVE VISL – 9.9 ug/L

- >10000 ug/L
- 5000–10000 ug/L
- 1000–5000 ug/L
- 100–1000 ug/L
- 50–100 ug/L
- 5–50 ug/L

NOTE:

1. CONCENTRATIONS POSTED REFLECT 2020 MONITORING WELL RESULTS, 2019 THROUGH 2013 MONITORING WELL RESULTS, PRE–2013 MONITORING WELL RESULTS, AND MAXIMUM CONCENTRATION FROM VERTICAL AQUIFER PROFILING FROM 2011 THROUGH 2015. THE INTERPRETATION OF THE ISOCONCENTRATION INCLUDES THE CONCEPTUAL SITE MODEL UNDERSTANDING (I.E. GROUNDWATER FLOW AND INTERIM MEASURES OPERATION).
2. WHEN SAMPLE RESULT IS NON–DETECT, HALF THE REPORTING LIMIT IS HONORED WITH THE CONTOURING.
3. RELATIVE UNDERSTANDING OF PRE–2013 CONCENTRATIONS (GRAY) WAS USED TO DEVELOP THE OVERALL PLUME GEOMETRY IN THE VICINITY OF THESE WELLS.
4. SCREENING LEVELS BASED ON OHIO EPA GUIDANCE DOCUMENT: RECOMMENDATIONS REGARDING RESPONSE ACTION LEVELS AND TIMEFRAMES FOR COMMON CONTAMINANTS OF CONCERN AT VAPOR INTRUSION SITES IN OHIO – AUGUST 2016. ASSUMES SANDY SOILS. SAME EXPOSURE PARAMETERS AS THE U.S. EPA VALUES; HOWEVER OHIO GUIDANCE INCORPORATES OLDER TOXICITY DATA.
5. TCE VAPOR INTRUSION SCREENING LEVEL (VISL) WAS CALCULATED USING THE U.S. EPA VISL CALCULATOR AND BASED ON THE OHIO EPA DEFAULT GROUNDWATER TEMPERATURE OF 11°C. THE APPROXIMATE TCE GROUNDWATER CONCENTRATION EXTENT ABOVE VISL WAS INTERPRETED AND BIASED TO SHALLOWER SCREENED MONITORING WELLS OR SAMPLES.

SITE–SPECIFIC VOLATILE ORGANIC COMPOUNDS	MCL (ug/L)
1,1,1–Trichloroethane	**200**
1,1–Dichloroethane	**--**
1,1–Dichloroethene	**7**
Benzene	**5**
cis–1,2–Dichloroethene	**70**
Ethylbenzene	**700**
Tetrachloroethene	**5**
Toluene	**1000**
trans–1,2–Dichloroethene	**100**
Trichloroethene	**5**
Vinyl chloride	**2**
Xylene (total)	**10,000**

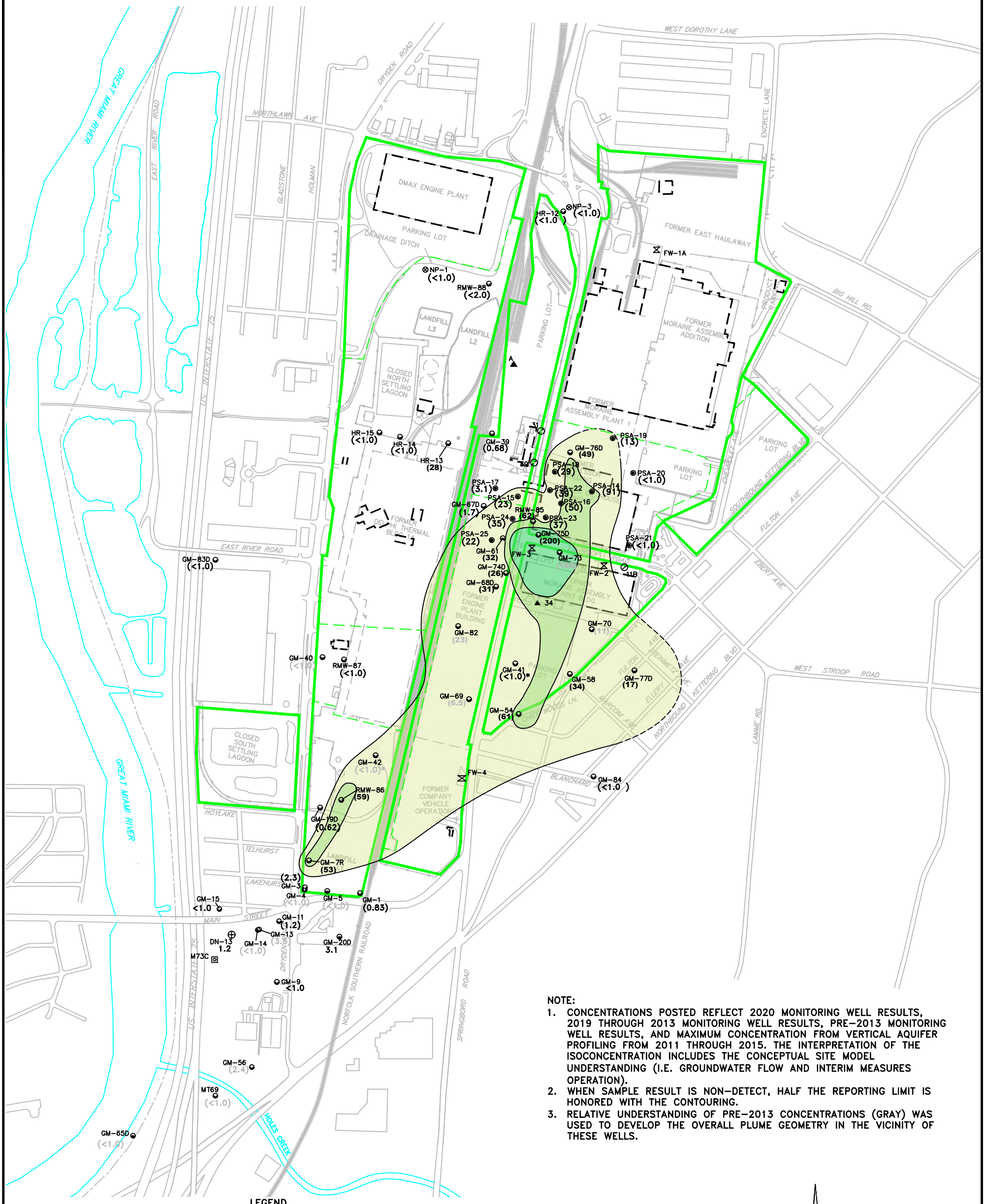
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MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

ISOCONCENTRATION MAP (UPPER AQUIFER) TRICHLOROETHENE - 2020

ARCADIS

FIGURE 11

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bsmith\BIM 360\Arcadis\ANA - RACER TRUST\Project Files\RACER MORAINE OH\2021\01-DWG\0004B\PLUMES-LOWER 2021.dwg LAYOUT: PCE 2020 SAVED: 1/25/2021 1:30 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/3/2021 2:19 PM BY: SMITH, BOB



NOTE:
1. CONCENTRATIONS POSTED REFLECT 2020 MONITORING WELL RESULTS, 2019 THROUGH 2013 MONITORING WELL RESULTS, PRE-2013 MONITORING WELL RESULTS, AND MAXIMUM CONCENTRATION FROM VERTICAL AQUIFER PROFILING FROM 2011 THROUGH 2015. THE INTERPRETATION OF THE ISOCONCENTRATION INCLUDES THE CONCEPTUAL SITE MODEL UNDERSTANDING (I.E. GROUNDWATER FLOW AND INTERIM MEASURES OPERATION).
2. WHEN SAMPLE RESULT IS NON-DETECT, HALF THE REPORTING LIMIT IS HONORED WITH THE CONTOURING.
3. RELATIVE UNDERSTANDING OF PRE-2013 CONCENTRATIONS (GRAY) WAS USED TO DEVELOP THE OVERALL PLUME GEOMETRY IN THE VICINITY OF THESE WELLS.

LEGEND

- MONITORING WELL (LOWER AQUIFER)
- PIEZOMETER
- FIRE WELL
- PRODUCTION WELL CONVERTED TO MONITORING WELL (A, 34)
- INACTIVE PRODUCTION WELL
- MONTGOMERY COUNTY WELL (USED BY RACER TRUST AS A LOWER AQUIFER RECOVERY WELL)
- BORING LOCATION
- PRIVATE WELL
- RIVER LEVEE
- FORMER BUILDING FOOTPRINT
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- <1.0 CONSTITUENT NOT DETECTED ABOVE LABORATORY LIMIT SHOWN
- ug/L MICROGRAMS PER LITER
- >100 ug/L
- 50-100 ug/L
- 5-50 ug/L

MCL	MAXIMUM CONTAMINANT LEVEL
<1.0	2020 CONCENTRATIONS
(<1.0)	2019-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	DATA NOT USED FOR CONTOURING PURPOSES

SITE-SPECIFIC VOLATILE ORGANIC COMPOUNDS	MCL (ug/L)
1,1,1-Trichloroethane	**200**
1,1-Dichloroethane	**--**
1,1-Dichloroethene	**7**
Benzene	**5**
cis-1,2-Dichloroethene	**70**
Ethylbenzene	**700**
Tetrachloroethene	**5**
Toluene	**1000**
trans-1,2-Dichloroethene	**100**
Trichloroethene	**5**
Vinyl chloride	**2**
Xylene (total)	**10,000**

N

0 100 850ft

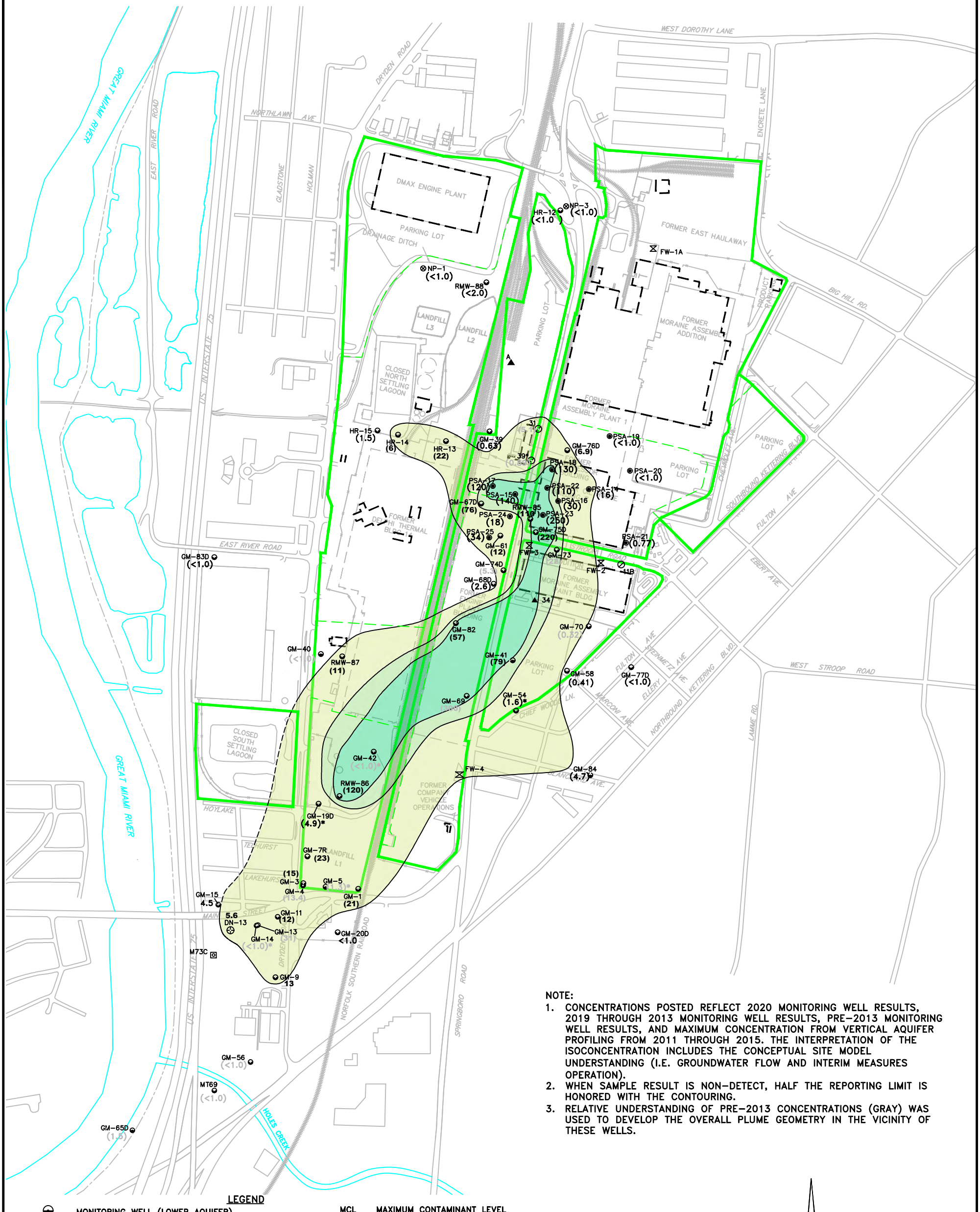
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ISOCONCENTRATION MAP (LOWER AQUIFER) TETRACHLOROETHENE - 2020

ARCADIS

FIGURE 12

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bsmith\BIM 360\Arcadis\ANA - RACER TRUST\Project Files\RACER MORAINE OH\2021\01-DWG\0004B\PLUMES-LOWER 2021.dwg LAYOUT: TCE 2020 SAVED: 1/25/2021 1:30 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/3/2021 2:22 PM BY: SMITH, BOB



NOTE:
1. CONCENTRATIONS POSTED REFLECT 2020 MONITORING WELL RESULTS, 2019 THROUGH 2013 MONITORING WELL RESULTS, PRE-2013 MONITORING WELL RESULTS, AND MAXIMUM CONCENTRATION FROM VERTICAL AQUIFER PROFILING FROM 2011 THROUGH 2015. THE INTERPRETATION OF THE ISOCONCENTRATION INCLUDES THE CONCEPTUAL SITE MODEL UNDERSTANDING (I.E. GROUNDWATER FLOW AND INTERIM MEASURES OPERATION).
2. WHEN SAMPLE RESULT IS NON-DETECT, HALF THE REPORTING LIMIT IS HONORED WITH THE CONTOURING.
3. RELATIVE UNDERSTANDING OF PRE-2013 CONCENTRATIONS (GRAY) WAS USED TO DEVELOP THE OVERALL PLUME GEOMETRY IN THE VICINITY OF THESE WELLS.

LEGEND

- MONITORING WELL (LOWER AQUIFER)
- PIEZOMETER
- FIRE WELL
- PRODUCTION WELL CONVERTED TO MONITORING WELL (A, 34)
- INACTIVE PRODUCTION WELL
- MONTGOMERY COUNTY WELL (USED BY RACER TRUST AS A LOWER AQUIFER RECOVERY WELL)
- BORING LOCATION
- PRIVATE WELL
- RIVER LEVEE
- FORMER BUILDING FOOTPRINT
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- <1.0 CONSTITUENT NOT DETECTED ABOVE LABORATORY LIMIT SHOWN
- ug/L MICROGRAMS PER LITER
- >100 ug/L
- 50-100 ug/L
- 5-50 ug/L

MCL	MAXIMUM CONTAMINANT LEVEL
<1.0	2020 CONCENTRATIONS
(<1.0)	2019-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	DATA NOT USED FOR CONTOURING PURPOSES

SITE-SPECIFIC VOLATILE ORGANIC COMPOUNDS	MCL (ug/L)
1,1,1-Trichloroethane	**200**
1,1-Dichloroethane	--
1,1-Dichloroethene	**7**
Benzene	**5**
cis-1,2-Dichloroethene	**70**
Ethylbenzene	**700**
Tetrachloroethene	**5**
Toluene	**1000**
trans-1,2-Dichloroethene	**100**
Trichloroethene	**5**
Vinyl chloride	**2**
Xylene (total)	**10,000**

0 100 850ft

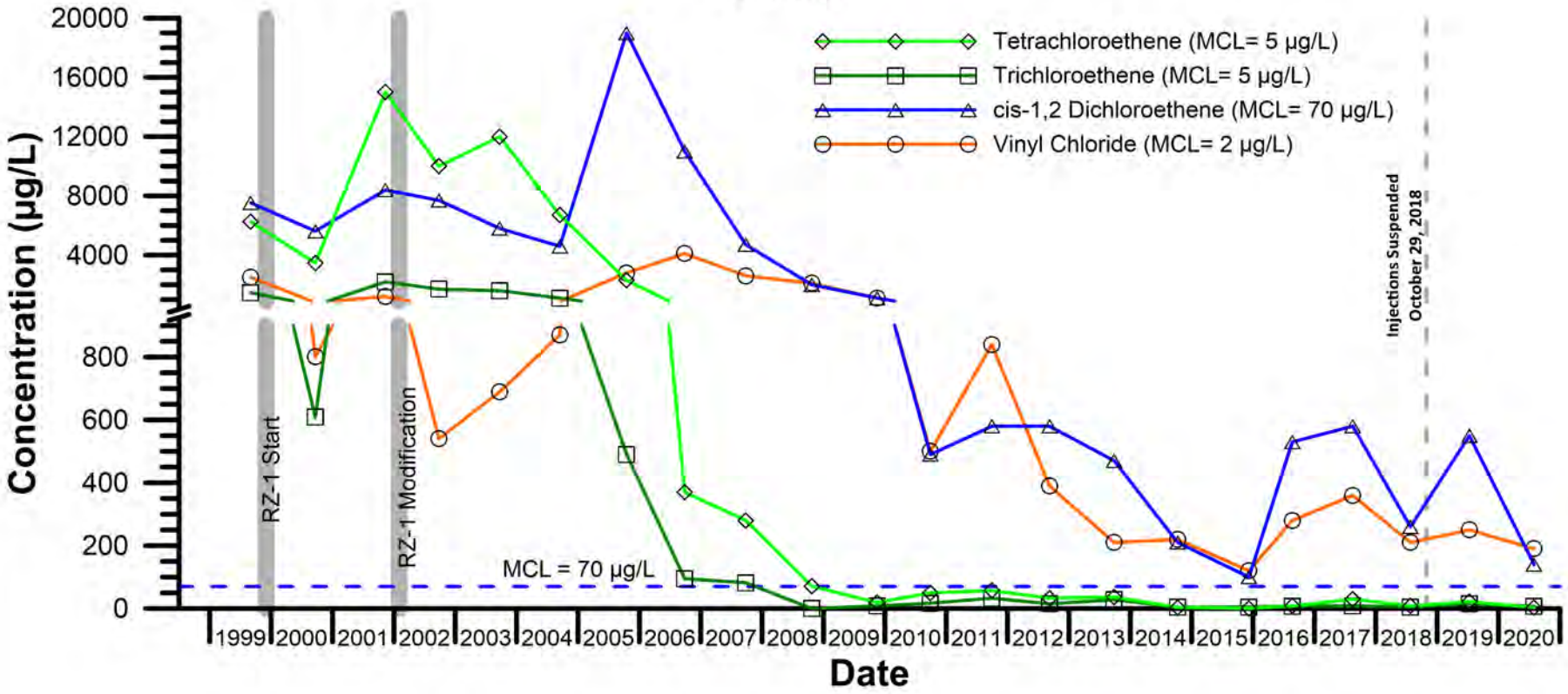
RACER TRUST
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ISOCONCENTRATION MAP (LOWER AQUIFER) TRICHLOROETHENE - 2020

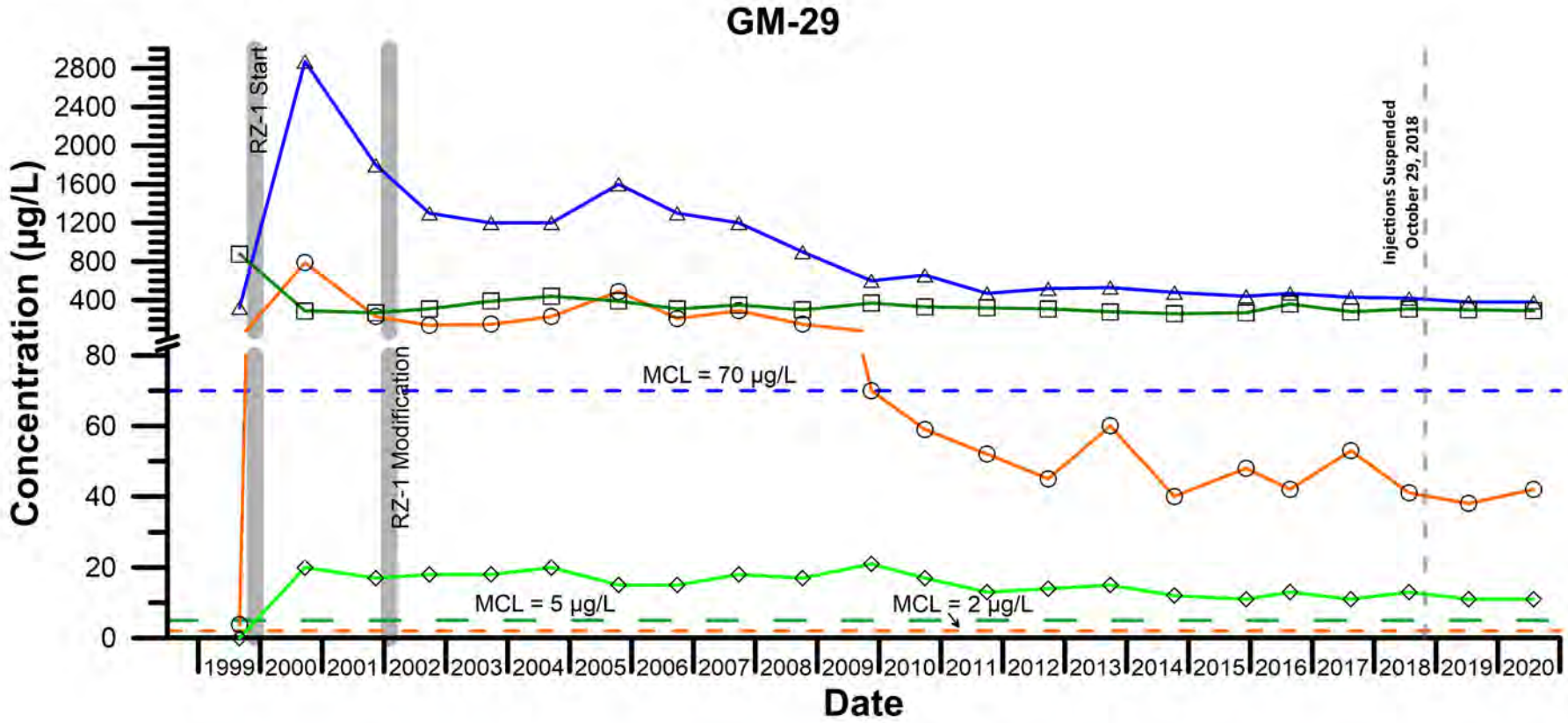
ARCADIS

FIGURE 13

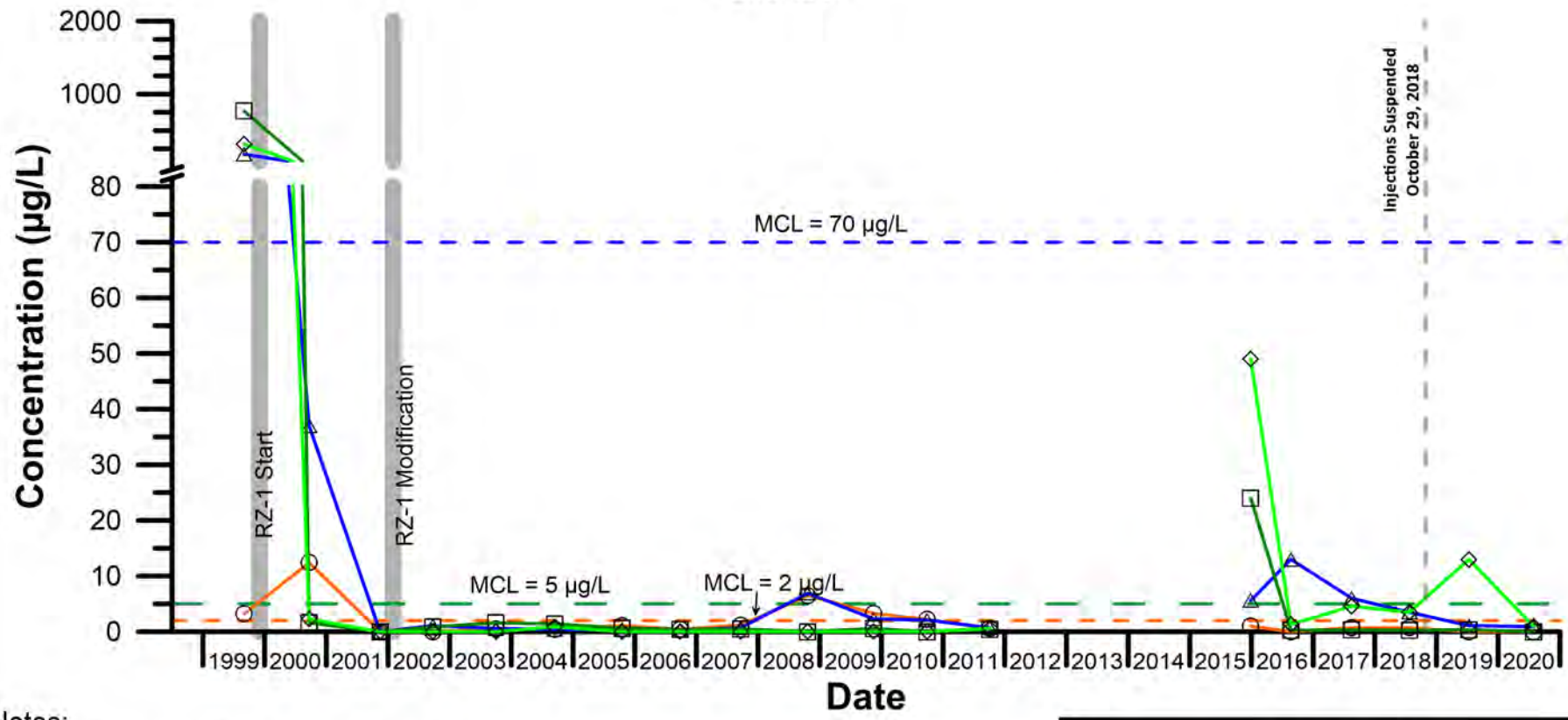
GM-23



GM-29



GM-28[1]



Notes:
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

1 - Performance monitoring well GM-28 was not sampled in 2012 through 2015 due to an obstruction in the well. Monitoring well GM-28R was installed in 2015 as a replacement for GM-28.

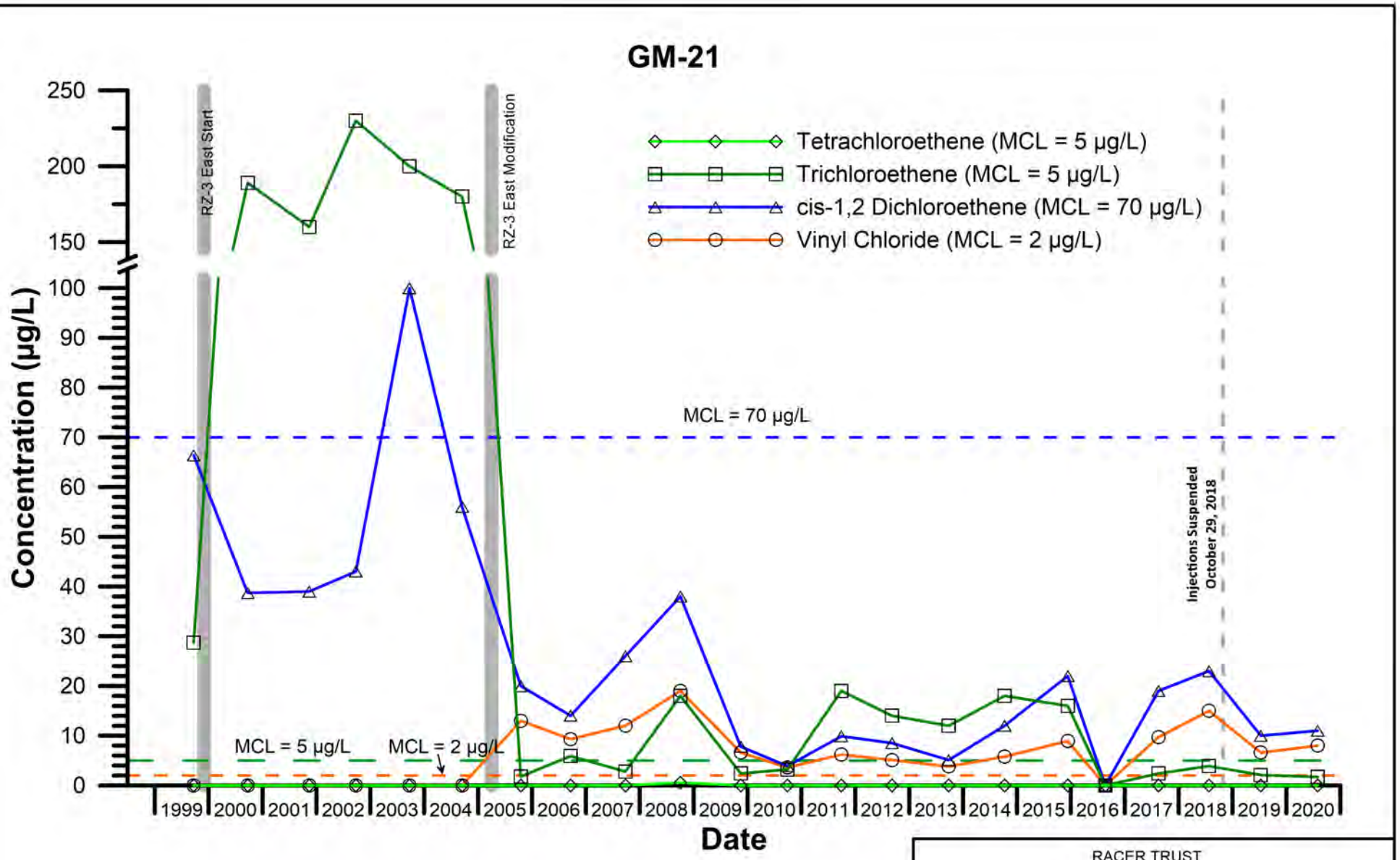
Carbon source introductions were not completed in 2020 in IRZ-1.

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IRZ-1 AREA GROUNDWATER CONCENTRATION GRAPHS

ARCADIS

FIGURE
14



Notes:
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

Carbon source introductions were not completed in 2020 in IRZ-3 East.

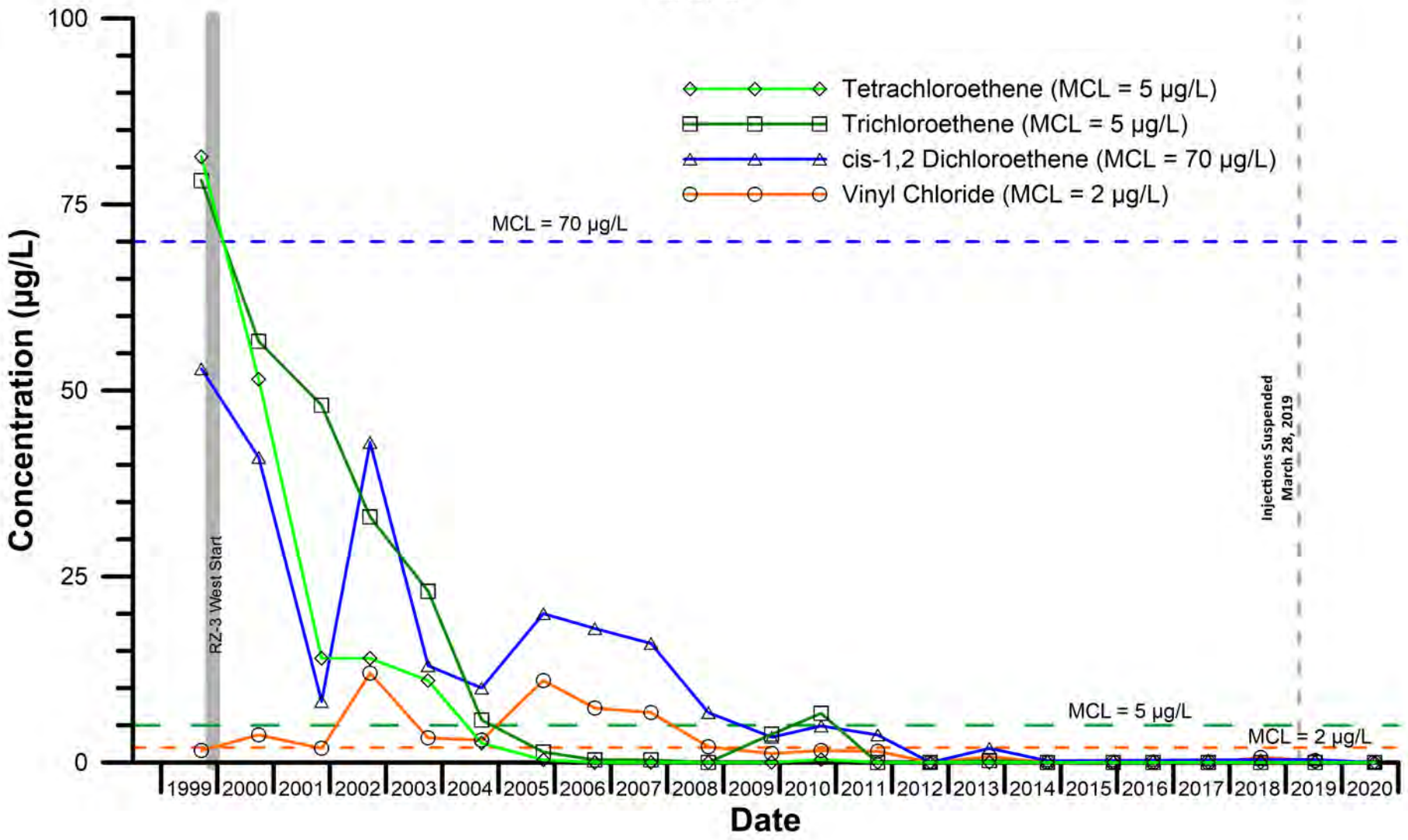
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2020 Groundwater Monitoring Report

IRZ-3 EAST AREA GROUNDWATER CONCENTRATION GRAPH

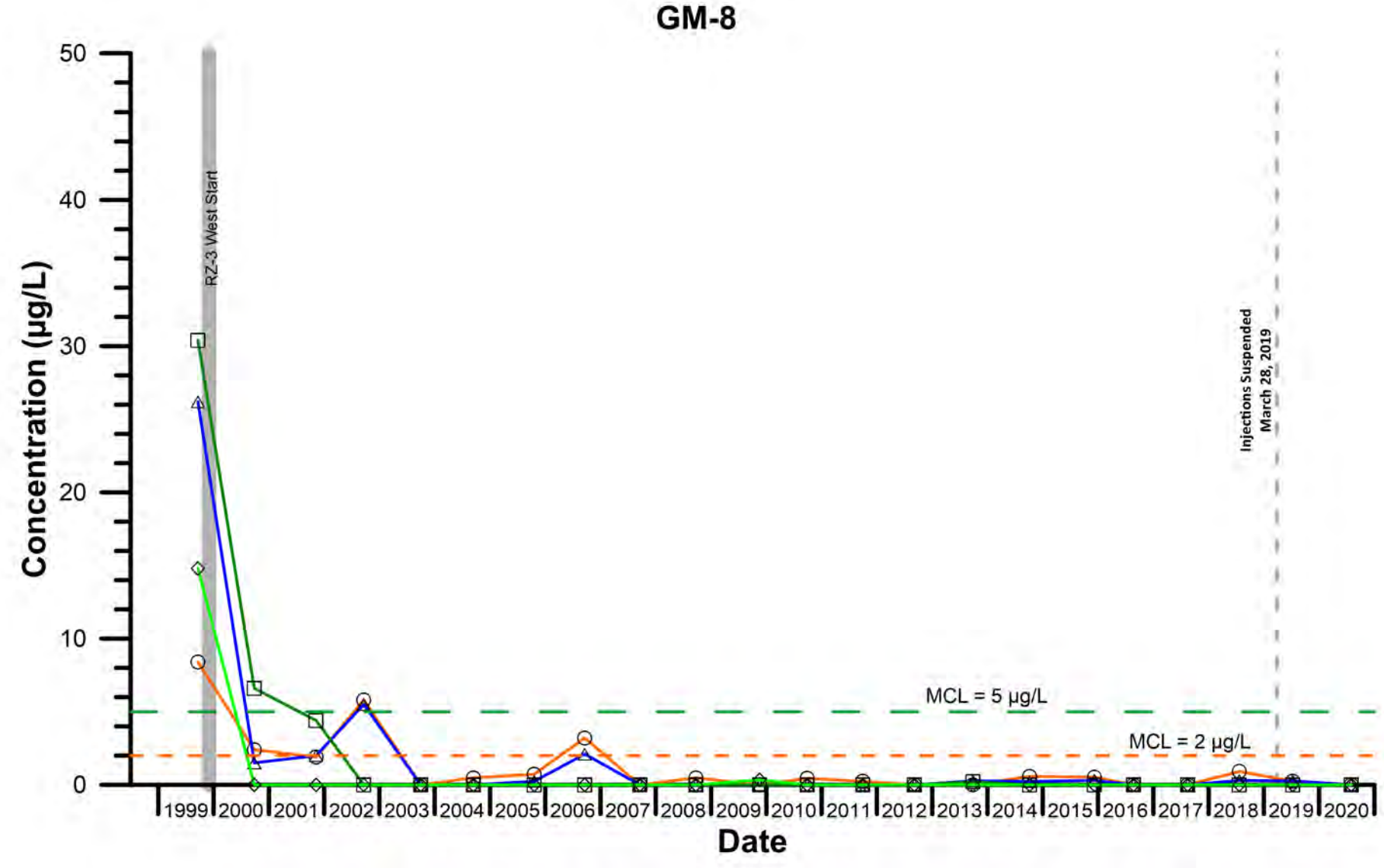
ARCADIS

FIGURE
15

GM-6



GM-8



MCL = Maximum Contaminant Level
µg/L = micrograms per liter

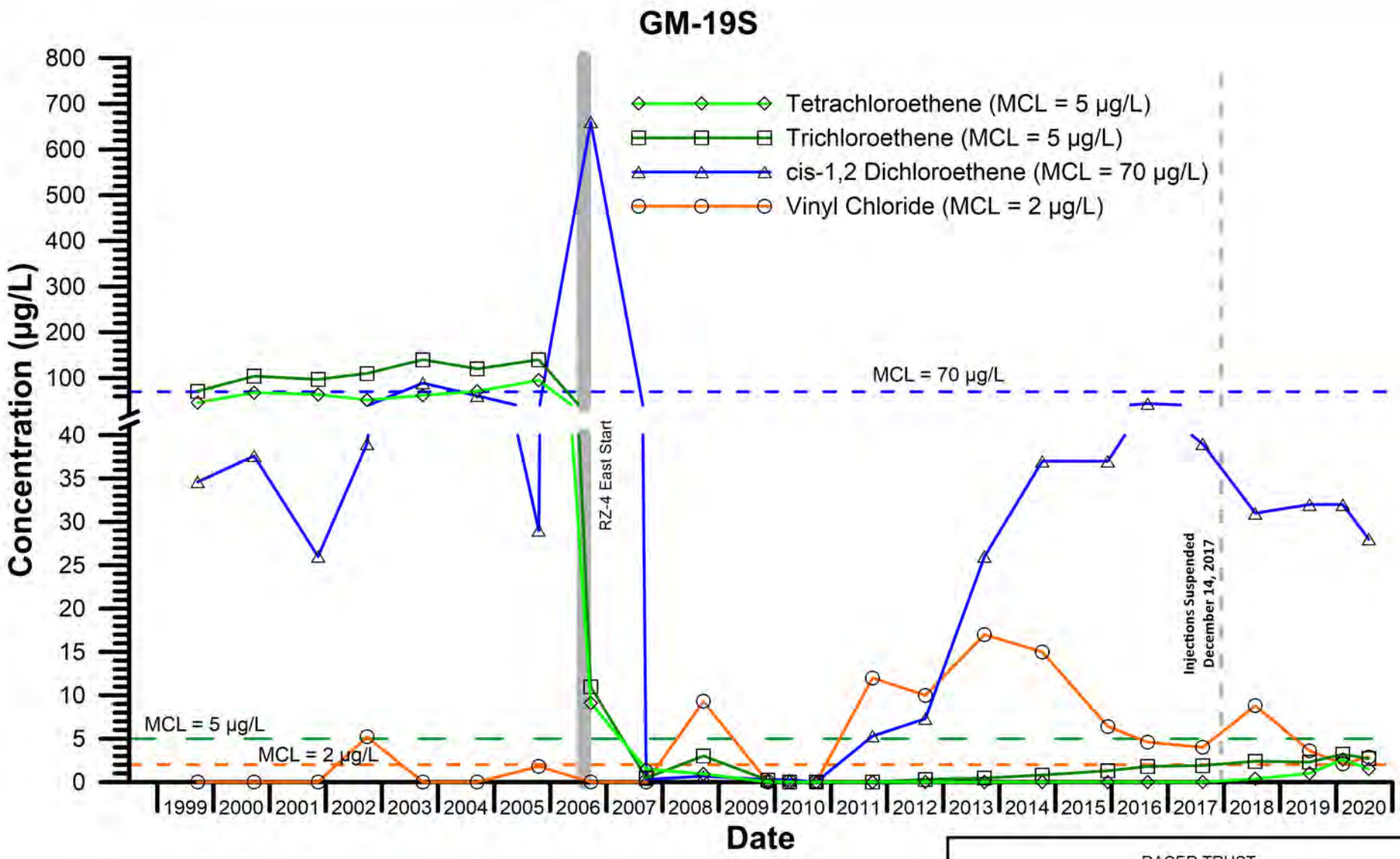
Carbon source introductions were not completed in 2020 in IRZ-3 West.

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IRZ-3 WEST AREA GROUNDWATER CONCENTRATION GRAPHS

ARCADIS

FIGURE
16



Notes:
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

Carbon source introductions were not completed in 2020 in IRZ-4 East.

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IRZ-4 EAST AREA GROUNDWATER CONCENTRATION GRAPH

ARCADIS

FIGURE
17

Created By: jchen Last Saved By: jchen Charts inserted in Fig18_Phase1DGR-PCE_TCE_ConcentrationTrends in GW.ai
C:\Users\jchen\OneDrive - ARCADIS\Documents_PROJECT\RACER_MORAINE\GIS\ArcMaps\2020_GW_MonitoringReport\Fig18_Phase1 DGR PCE and TCE Conc Trends in GW.mxd 02/15/2021 5:51:29 PM



LEGEND

PHASE 1 DGR™ (UPPER AQUIFER)

- EXTRACTION WELL
- INJECTION WELL

UPPER AQUIFER

- UPPER AQUIFER WELL
- CURRENT BUILDING
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY

- TCE CONCENTRATION
- PCE CONCENTRATION
- TCE VISL (9.9 µg/L)
- PCE VISL (122 µg/L)

PCE = Tetrachloroethene
TCE = Trichloroethene
µg/L = Micrograms per Liter
EPA = Environmental Protection Agency
VISL = Vapor Intrusion Screening Level
UA = Upper Aquifer
WT = Water Table
TT = Top of Till (Regional Clay Till)

0 300 600 Feet

Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/15/2021.
3. Screening Levels are calculated using U.S. EPA VISL calculator and based on average groundwater temperature of 11°C.

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2020 GROUNDWATER MONITORING REPORT

PHASE 1 DGR™ - PCE AND TCE CONCENTRATION TRENDS IN GROUNDWATER

ARCADIS

FIGURE
18

Appendix A

In-Situ Reactive Zones Performance Results

Appendix A

In-Situ Reactive Zones
Performance Results

Reactive Zone Monitoring

As detailed in the 2020 Groundwater Monitoring Report (Report), the enhanced reductive dechlorination (ERD) process, using molasses as the carbon source, was implemented at the Site from 1999 through the first quarter of 2019. ERD was implemented to address impacts at the former Oil House Area and downgradient, diffuse site-specific volatile organic compound (VOC) concentrations at in-situ reactive zones (IRZ) IRZ-1, IRZ-2, IRZ-3 East, IRZ-3 West, and IRZ-4 East. The IRZs are shown on Figure 4 of the Report.

The injection frequency at the different reactive zones has been modified based on site-specific VOC concentrations and the organic carbon degradation trend. In 2018, injections were implemented on a quarterly basis. This frequency was continued in the first quarter of 2019 at IRZ-3 West only. The 2018 Groundwater Monitoring Report (Arcadis 2019) recommended that active injections be suspended on an interim basis to allow for monitoring of rebound and to prepare groundwater conditions for the operation of the Phase 1 Dynamic Groundwater Recirculation (DGR™) interim measure (discussed in the Report and Appendix H). On May 20, 2019, the United States Environmental Protection Agency (U.S. EPA) approved suspension of the injections. Carbon source solution injections have not been completed since the first quarter of 2019. Monitoring to evaluate the need for additional injections is ongoing.

Monitoring of the reactive zones was completed through the collection of field parameter measurements and laboratory analyses of biogeochemical indicator parameters and VOCs, according to the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002) and as modified in subsequent annual monitoring reports. Field parameter measurements included: pH, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and temperature. Biogeochemical parameters, collected at select monitoring wells, included manganese (total and dissolved), iron (total and dissolved), sulfate, sulfide, total organic carbon (TOC), chlorides, light hydrocarbons (ethane and ethene), and methane. In 2020, the biogeochemical list was focused and reduced to TOC, ethane, ethene, and methane. The monitored site-specific VOCs included: benzene, toluene, ethylbenzene, xylenes, tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride, 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and trans-1,2-dichloroethene (trans-1,2-DCE).

Historical TOC data collected to evaluate organic carbon longevity within the IRZs and to review the applicable injection timing are presented in **Tables A-1** and **A-2**. The VOC data collected from the IRZ monitoring wells are presented in **Tables A-3** through **A-6** of this appendix. The bioattenuation parameter data (ethane, ethene, and methane) collected from the IRZ monitoring wells are presented in **Tables A-7** through **A-10**. An evaluation of pertinent monitoring data is presented in the following sections.

The monitoring data highlighted above can be broadly categorized as: (i) “primary” operational monitoring data, which tracks the actual operation of the remediation system and determines whether the operation is proceeding as planned, and (ii) “secondary” operational monitoring data,

which assists in any necessary troubleshooting of the system. The secondary data becomes important if degradation of the VOCs is not proceeding as expected, and the cause cannot be determined from the primary operational monitoring data. The primary operational monitoring data includes pH, TOC, VOCs, ethene, ethane, and methane. Secondary operational monitoring data included dissolved manganese, dissolved iron, sulfate, and ORP. Only ORP is provided in 2020 and going forward as other parameters have been reduced. The primary operational data for select IRZ monitoring wells is discussed below in relation to the suspension of injections in 2019 and presented graphically on **Figures A-1** through **A-3**.

Locations of the performance monitoring wells relative to each reactive zone are shown on Figure 4 of the Report. The following wells are used for performance monitoring of the IRZs.

- At IRZ-1, monitoring wells GM-23, GM-28R, and GM-29 are used for performance monitoring. GM-23 and GM-29 are located within the area of IRZ-1 expansion wells. GM-28, located downgradient of the original IRZ-1 transect, was formerly used for performance monitoring; however, it is no longer sampled due to an obstruction in the well. Replacement well GM-28R was installed in 2015 and is used in this evaluation. Monitoring well GM-27 was sampled in 2019 and 2020 to provide a current understanding of concentrations deeper within the upper aquifer in the area of IRZ-1.
- At IRZ-3 West, monitoring well GM-32, which is within the injection zone due to its location being constrained by the proximity of Landfill L1, is designated as the downgradient monitoring well. Monitoring well GM-32 is typically only analyzed for TOC, as this well is in the early stages of the reactive zone due to its proximity to the introduction wells. However, monitoring well GM-32 was sampled for VOCs since injections were suspended in 2019. Monitoring well GM-8, located further downgradient, is utilized to monitor the performance of IRZ-3 West. Additionally, downgradient well GM-6 was also utilized to confirm concentrations in the area.
- For IRZ-3 East, monitoring well GM-21 is designated as the downgradient monitoring well. Additional monitoring downgradient at monitoring well GM-2 is also completed.
- For IRZ-4 East, monitoring well GM-19S is designated as the downgradient monitoring well.

Analysis of Primary Operational Monitoring Data

The primary operational data are comprised of a limited number of analytes that are monitored at a frequency necessary to supply the information required for the operation of the remediation system. The entire data set is presented in **Tables A-1** through **A-10**. Figures **A-1** through **A-3** present the primary operational data (pH, TOC, methane, VOCs, ethane, and ethene) graphically for downgradient monitoring wells used for monitoring the effectiveness of each of the IRZs (GM-23, GM-29, GM-28R, GM-8, GM-21, and GM-19S). The graphs are organized to allow a simple comparison of the trends in each monitoring well for pH, TOC, methane, VOCs, ethene, ethane, and total parent-daughter compound molarity. A discussion of the primary operational data is provided below.

Appendix A

In-Situ Reactive Zones
Performance Results

pH

The preferred pH range for reductive dechlorination is between 6 and 8 standard units (s.u.), and the acceptable pH range extends from 5 to 9 s.u. The pH measurements collected in 2020 from performance monitoring wells were within the acceptable pH range.

Total Organic Carbon and Anaerobic Indicator Parameters

TOC values detected in the performance monitoring wells downgradient of the injection wells are generally similar to background concentrations or decreasing, which is expected for wells located downgradient of the injection line post-suspension. However, detectable concentrations of methane throughout the downgradient well network for each reactive zone demonstrates that background electron acceptors are being utilized enough to sustain highly anaerobic conditions. **Figures A-1** through **A-3** provide trend graphs of historic concentrations in the performance monitoring wells.

VOC Analytical Results

The groundwater analytical data for the site-specific list of VOCs are presented in **Table A-3** for IRZ-1, **Table A-4** for IRZ-3 West, **Table A-5** for IRZ-3 East, and **Table A-6** for IRZ-4 East. Additionally, the degradation of PCE and TCE (parent compounds) to cis-1,2-DCE, vinyl chloride (daughter products), and ethene and ethane (end products) are provided with the pH, TOC, and methane data for performance monitoring wells associated with IRZ-1 (GM-23, GM-29, and GM-28R **Figure A-1**), IRZ-3 East/West (GM-21 and GM-8 **Figure A-2**), and IRZ-4 East (GM-19S **Figure A-3**). The figures also show a comparison of degradation end-products ethane and ethene to VOCs per performance well based on molar weight equivalence. For IRZ-3 West, GM-32 was included for sampling of site-specific list of VOCs in 2019 and 2020, but not included in the figures.

Site-specific VOC concentrations in performance monitoring wells downgradient of the injection wells are generally consistent with or less than average concentrations detected over the previous five years. Concentrations of parent compounds (PCE and TCE) are lower at all monitoring wells relative to baseline concentrations and the compounds currently detected at those monitoring wells are primarily biodegradation end products (ethane and ethene) with some continued detections of intermediate biodegradation daughter products (cis-1,2-DCE and vinyl chloride). To date, there has been no indication of rebound of VOC compounds following the injection suspension in the first quarter of 2019. Monitoring well GM-27, screened deeper in the upper aquifer in the area of IRZ-1 was sampled in 2019 and 2020 to confirm conditions at that depth. The groundwater concentration data suggests decreasing concentrations of TCE with other site-specific VOC concentrations that are low or non-detect.

An exception in the site-specific VOC concentrations downgradient of the injection wells is at monitoring well GM-2, located further downgradient of IRZ-3 East. The monitoring well results indicate slightly increasing detections of PCE and TCE over the past 5 years and are currently at

30 µg/L and 3.9 µg/L, respectively. Note that these concentrations are below the residential Vapor Intrusion Screening Levels (VISLs) for groundwater. Daughter products were all non-detect in 2020. Additional monitoring will be completed to further evaluate trends, assess the biodegradation in the downgradient area, and evaluate the need for additional injection events.

Conclusions

The following observations and conclusions can be made:

- Upper aquifer conditions were strongly reducing within and downgradient of the IRZs due to the previous injections of a carbon source (i.e., molasses), as evidenced by the presence of dissolved phase methane.
- The target compounds (PCE and TCE) were largely reduced to daughter products (cis-1,2-DCE and vinyl chloride) and ultimately to end products (ethene and ethane) based on the VOC and light hydrocarbon data.
- No significant changes in anaerobic conditions (e.g., the concentration of methane) or treatment effectiveness (e.g., sustained reductions in site-specific VOC concentrations with the observation of elevated concentrations of ethene and/or ethane) were observed as a result of the suspension of injections after the first quarter of 2019.

The 2021 IRZ performance monitoring program will be similar to the 2020 program for IRZ-3 East, IRZ-3 West, and IRZ-4 West, with the addition of monitoring wells GM-17 and WSU-24 to further characterize the concentrations of PCE observed at GM-2 in 2020. In addition, IRZ-1 monitoring wells (GM-23, GM-27, GM-8R, and GM-29) will not be sampled in 2021 as this area is located well within the boundaries of the Site, has had a long history of sampling data analysis, and concentrations of site-specific VOCs appear to be consistent from year to year.

The frequency of monitoring events will be on an annual basis. The data will be reviewed to determine if there is a significant rebound in site-specific VOC concentrations. If warranted, the IRZ program may be resumed. If the overall changes to the site-specific VOC data indicate an immaterial effect on the diffuse groundwater plume system design, the IRZ program will remain suspended.

References

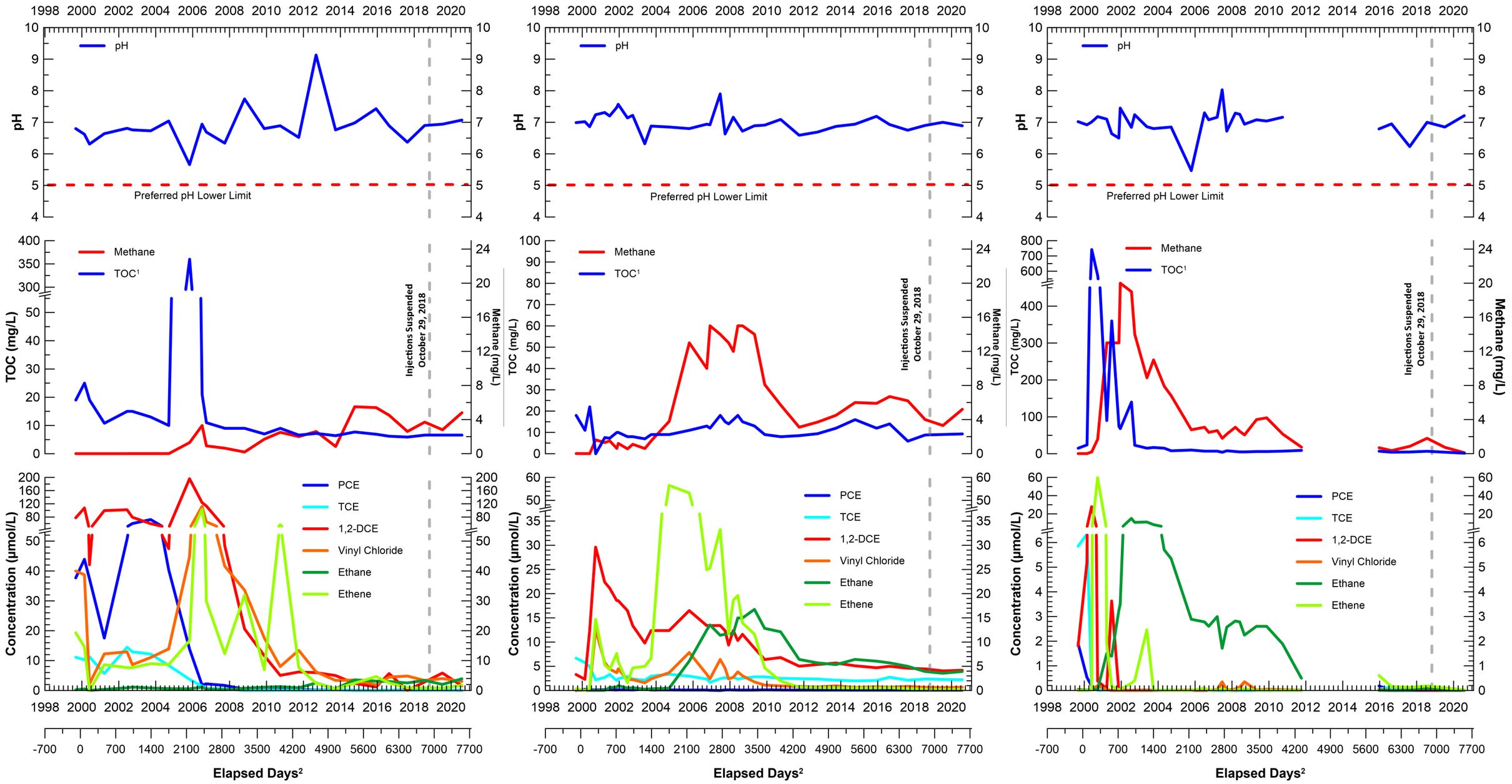
Arcadis Geraghty & Miller, Inc. 2002. Site-Wide Groundwater Monitoring Plan, General Motors Corporation, Moraine, Ohio. May 2002.

Arcadis, Inc. 2019. 2018 Groundwater Monitoring Report, RACER trust, Moraine, Ohio. February 28, 2019.

GM-23 (Former Source Area)

GM-29 (Downgradient)

GM-28 and GM-28R[3] (Downgradient)



1 - TOC breakthrough is 20 mg/L.
2 - Days since RZ-1 ERD implementation.
3 - GM-28 has not been sampled since 2011 due to an obstruction in the well. GM-28R was installed in 2015 as a replacement for GM-28.
ERD - Enhanced reductive dechlorination.

pH - Negative logarithm of the hydrogen-ion concentration.
mg/L - Milligram per liter.
µmol/L - Micromoles per liter.
TOC - Total organic carbon.
PCE - Tetrachloroethene.
TCE - Trichloroethene.
1,2-DCE - cis and trans-1,2-Dichloroethene.

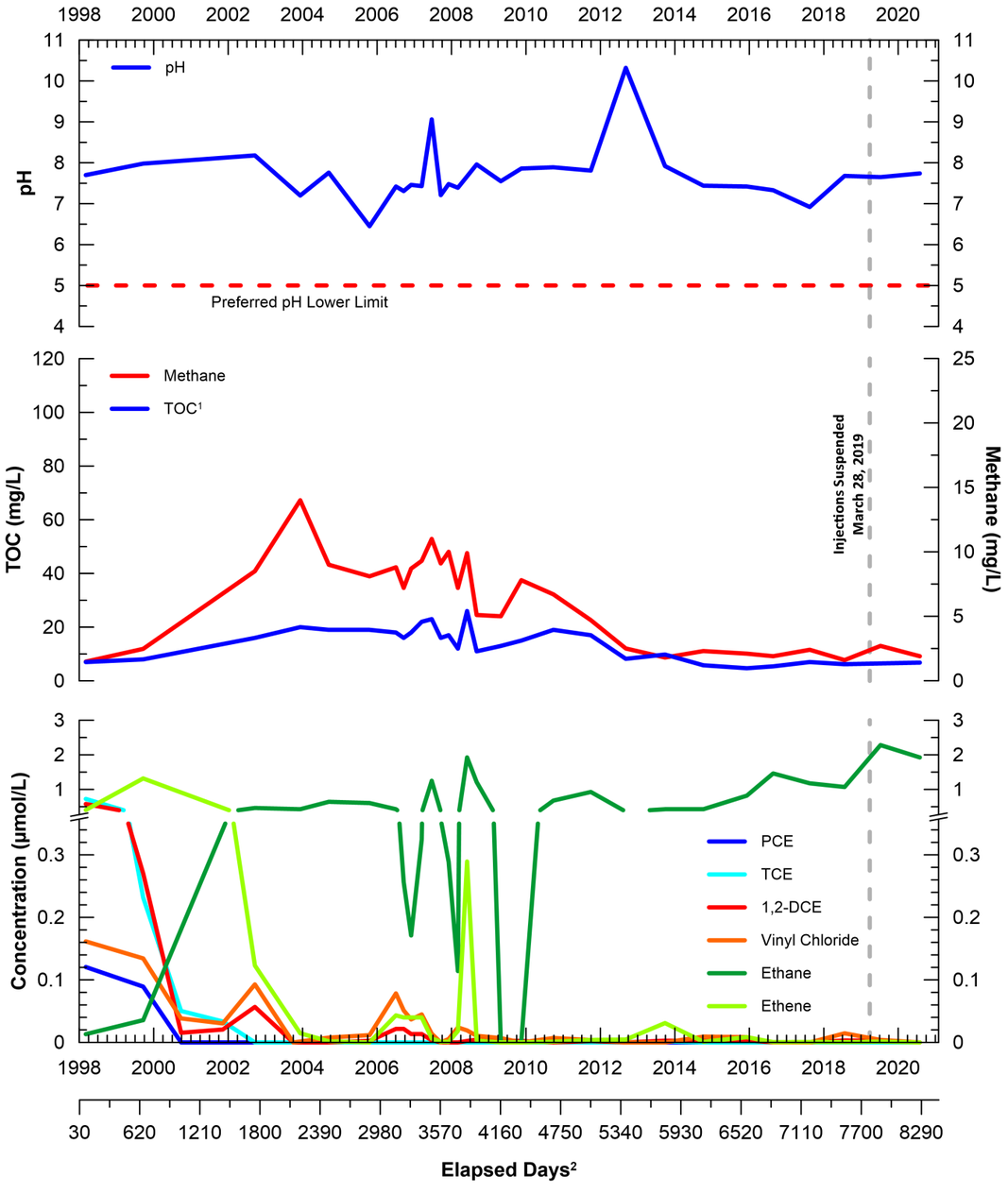
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IRZ-1 ERD ANALYSIS
(GM-23, GM-29, GM-28, GM-28R)

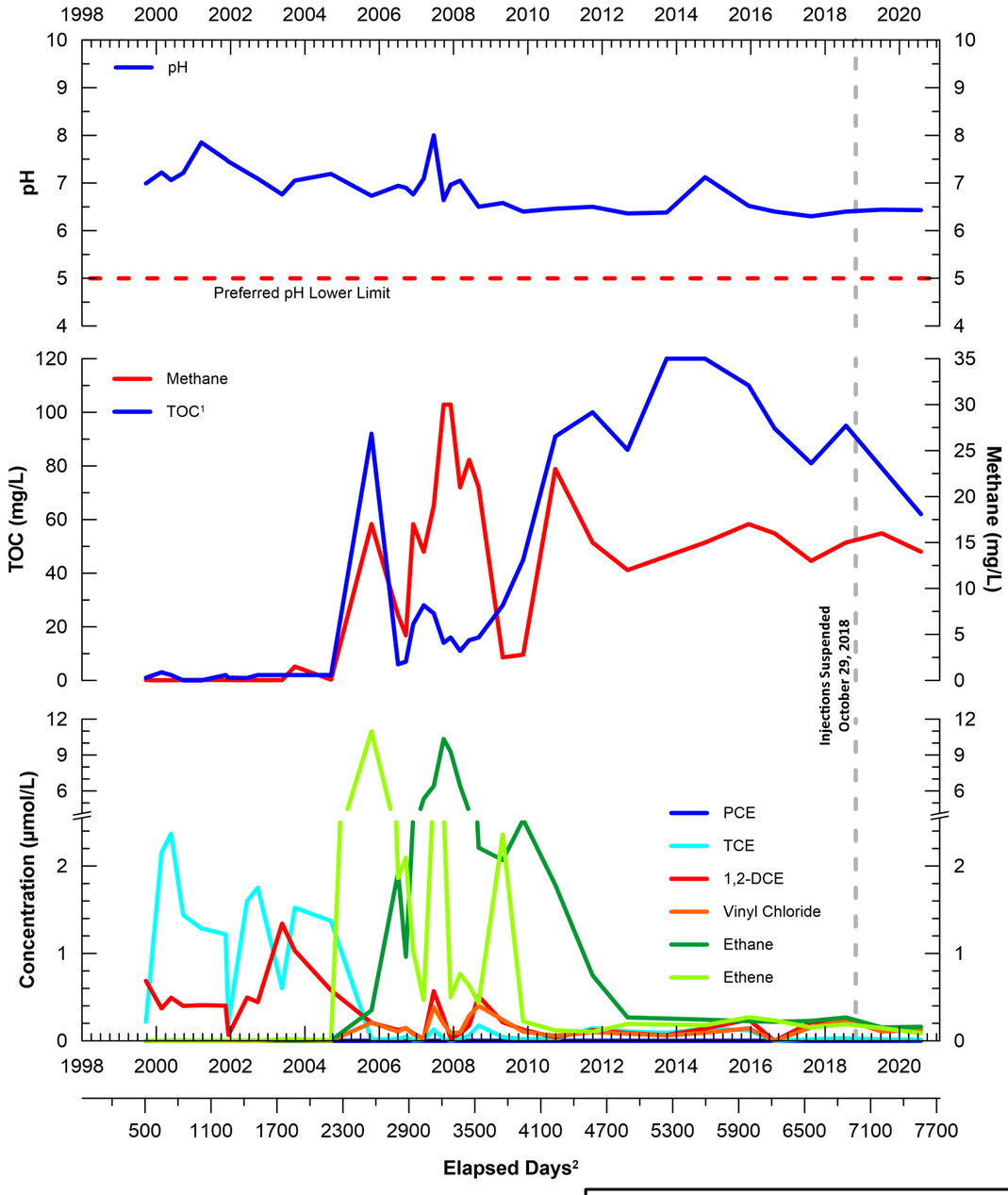
ARCADIS

FIGURE
A-1

GM-8 (Downgradient)



GM-21 (Downgradient)



1 - TOC breakthrough is 20 mg/L.
2 - Days since RZ-3 ERD implementation.
ERD - Enhanced reductive dechlorination.
pH - Negative logarithm of the hydrogen-ion concentration.
mg/L - Milligram per liter.
µmol/L - micromoles per liter.
TOC - Total organic carbon.
PCE - Tetrachloroethene.
TCE - Trichloroethene.
1,2-DCE - cis and trans-1,2-Dichloroethene.

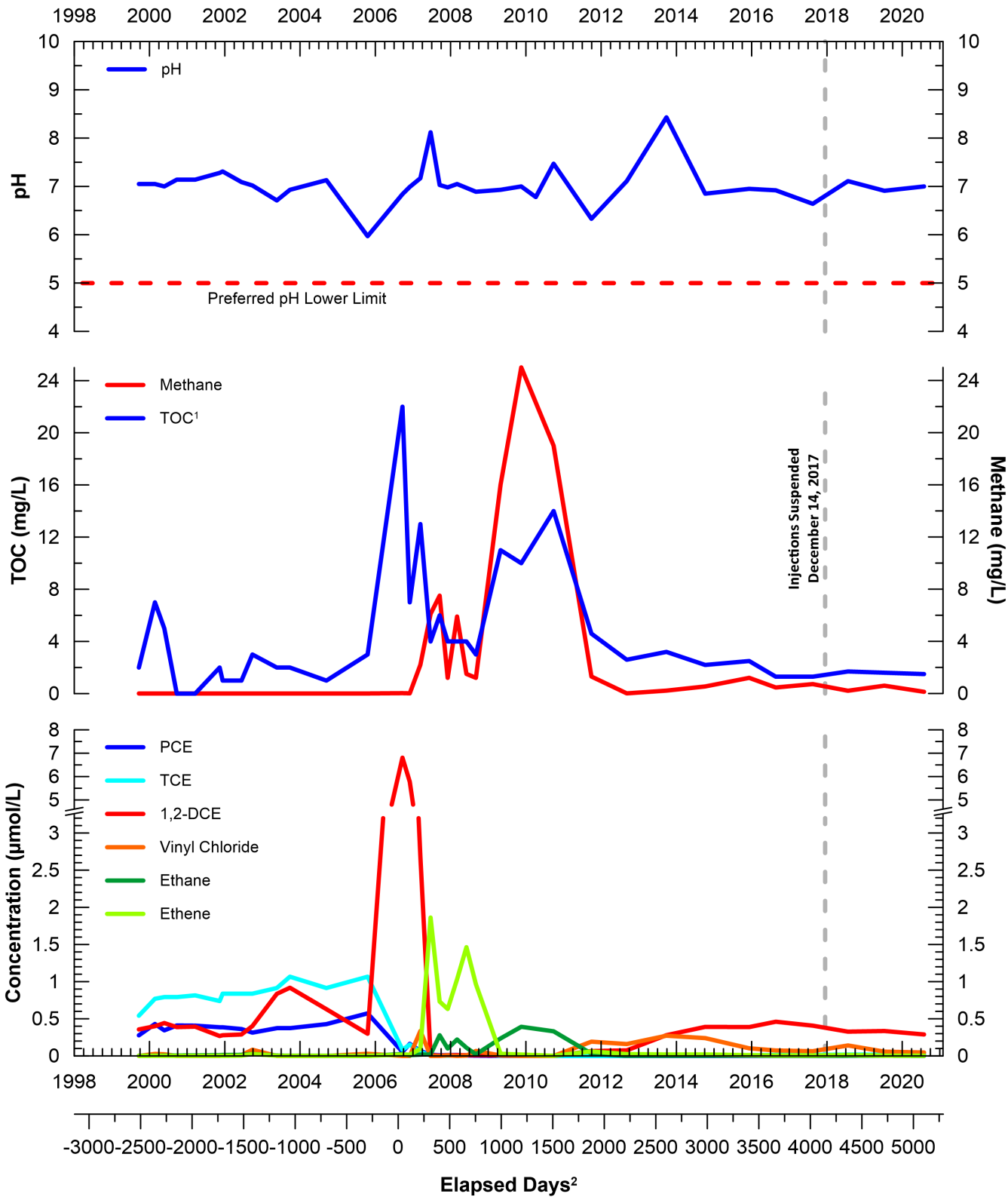
Note: Ethene, ethane, and methane parameters were not collected during the 2013 annual groundwater sampling event at GM-21.

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IRZ-3 WEST/EAST ERD ANALYSIS
GM-8 (WEST), GM-21(EAST)

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FIGURE
A-2



1 - TOC breakthrough is 20 mg/L.
2 - Days since RZ-4 ERD implementation.
ERD - Enhanced reductive dechlorination.
pH - Negative logarithm of the hydrogen-ion concentration.
mg/L - Milligram per liter.
µmol/L - micromoles per liter.
TOC - Total organic carbon.
PCE - Tetrachloroethene.
TCE - Trichloroethene.
cis-1,2-DCE - cis-1,2-Dichloroethene.

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IRZ-4 ERD ANALYSIS
(GM-19S - DOWNGRADIENT)

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FIGURE
A-3

Table A-1
TOC Data in the In-Situ Reactive Zones
RACER Trust
Moraine, Ohio

Monitoring Location	Date	Days Since Injection	TOC (mg/L)
IRZ-3D	12/11/2013	0	3200
	1/9/2014	29	940
	2/11/2014	62	720
IRZ-3S	12/11/2013	0	2600
	1/9/2014	29	1800
	2/11/2014	62	980
IRZ-3TT	12/11/2013	0	3600
	1/9/2014	29	1900
	2/11/2014	62	370
IRZ-1E	12/11/2013	0	2800
	1/9/2014	29	560
	2/11/2014	62	420
IRZ-4E	12/11/2013	0	2300
	1/9/2014	29	1300
	2/11/2014	62	840

NOTES:

mg/L - Milligrams per Liter.

TOC - Total Organic Carbon.

Table A-2
In-Situ Reactive Zone TOC Decay and Required Carbon Introduction Frequency
RACER Trust
Moraine, Ohio

			Calculated Half-life	Estimated Days to Reach 20 mg/L from Last Sampling Date (t)[2]	Required Injection Frequency[3]
Monitoring Location	Recent Injection Date	Recent Sample Collection Date	k (day-1) [1]	(days)	(months)
IRZ-3D	12/9/2013	2/11/2014	0.0237	151.20	7.17
IRZ-3S	12/9/2013	2/11/2014	0.0158	308.07	12.40
IRZ-3TT	12/6/2013	2/11/2014	0.037	121.62	6.29
IRZ-1E	12/9/2013	2/11/2014	0.0301	129.30	6.44
IRZ-4E	12/10/2013	2/11/2014	0.0162	320.55	12.79
				Average (months) =	9.02

NOTES:

(1) t = -(1/k)LN(C/C0)

C - target TOC concentration to trigger injection (i.e., 20 mg/L)

C0 - TOC cocentration from the previous sampling event

(2) Slope from k-value plots.

(3) Required injection frequency = t + days between December 2013 injection event and February 2014 TOC sampling event.

mg/L - Milligrams per Liter.

TOC - Total Organic Carbon.

Table A-3
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 1 Wells
RACER Trust
Moraine, Ohio

IRZ-1			GM-29																													
Constituents	**Units**	**MCL[1]**	**9/1/99**	**2/22/00**	**5/26/00**	**9/21/00**	**3/20/01**	**6/26/01**	**11/13/01**	**12/12/01**	**6/13/02**	**9/25/02**	**5/22/03**	**9/24/03**	**9/15/04**	**9/29/99**	**2/22/00**	**5/26/00**	**10/17/05**	**9/28/06**	**9/26/07**	**10/6/08**	**11/17/09**	**9/29/10**	**9/30/11**	**9/26/12**	**9/27/13**	**10/9/14**	**12/8/15**	**8/22/16**	**8/17/17**	**7/25/18**	**7/12/19**	**7/31/20**
Volatile Organic Compounds																																	
1,1,1-Trichloroethane	ug/L	200	37.8	36.0	32.5	24.5	27.0	23.8 J	<50 U	19 J	17	16 J	<50 U	18 J	21 J	5.7	<50	<5.0	19 J	17 J	15 J	12 J	18	11 J	11 J	10 J	15	9.1 J	9.9	10	9.6	8.1	8.4 J	7.8
1,1-Dichloroethane	ug/L	--	4.3	4.1	6.3	16.6	10.8	6.3 J	<50 U	<50 U	<50 U	<40 U	<50 U	<33 U	<50 U	1.8	<50	<5.0	18 J	15 J	15 J	11 J	12	11 J	8.5 J	8.2 J	12	9.5 J	10	10	13	10	9.2 J	9.5
1,1-Dichloroethene	ug/L	7	1.3	1.1	1.6	3.1	3.5	3.0 J	<50 U	<50 U	<50 U	<40 U	<50 U	<33 U	<50 U	<50 U	<50 U	<50 U	<50 U	<33 U	<50 U	<33 U	<10 U	<20 U	<13 U	<20 U	1.7	<14 U	1.2 J	<2.0 U	1.0 J	<2.0 U	< 13 U	< 1.3 U
Benzene	ug/L	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<50 U	<50 U	<50 U	<40 U	<50 U	<33 U	<50 U	<50 U	<50 U	<50 U	<50 U	<33 U	<50 U	<33 U	<10 U	<20 U	< 13 U	<20 U	0.20 J	<14 U	<1.7 U	<2.0 U	< 2.0 U	<2.0 U	< 13 U	< 1.3 U
cis-1,2-Dichloroethene	ug/L	**70**	**320**	**223**	**1,190J**	**2,871**	**2,170**	**2,050 J**	**1,800**	**1,800**	**1,600**	**1,300**	**950**	**1,200**	**1,200**	**69**	**294**	**688**	**1,600**	**1,300**	**1,200**	**900**	**600**	**660**	**470**	**520**	**530**	**480**	**440**	**470**	**430**	**420**	**380**	**380**
Ethylbenzene	ug/L	700	<1.0 U	1.4	<1.0	<1.0	<1.0 U	<1.0U J	21 J	<50 U	<50 U	<40 U	<50 U	<33 U	<50 U	<50 U	<50 U	<50 U	<50 U	<33 U	<50 U	<33 U	<10 U	<20 U	<13 U	<20 U	<1.0 U	<14 U	<1.7 U	<2.0 U	< 2.0 U	<2.0 U	< 13 U	< 1.3 U
Tetrachloroethene	ug/L	**5**	<20	**38.7**	**24.6**	**20.0**	**24.4**	**24.8 J**	**17 J**	**22 J**	**22**	**18 J**	**47J**	**18 J**	**20 J**	**252**	**<50**	**45.4**	**15 J**	**15 J**	**18 J**	**17 J**	**21 J**	**17 J**	**13**	**14 J**	**15**	**12 J**	**11**	**13**	**11**	**13**	**11 J**	**11**
Toluene	ug/L	1000	<1.0 U	<1.0 U	<1.0 U	2.2	<1.0 U	<1.0 UJ	<50 U	<50 U	<50 U	<40 U	<50 U	<33 U	<50 U	<50 U	<50 U	<50 U	<50 U	<33 U	<50 U	<33 U	<10 U	<20 U	<13 U	<20 U	<1.0 U	<14 U	<1.7 U	<2.0 U	< 2.0 U	<2.0 U	< 13 U	< 1.3 U
trans-1,2-Dichloroethene	ug/L	100	11.1	9.1	8.9	14.4	20.4	25.6 J	26	24 J	21	21	<25 U	20	21 J	3.6	<50	5	27 J	20 J	19 J	16 J	20	19 J	17	15 J	20	15	15	14	16	13	13	25
Trichloroethene	ug/L	**5**	**878**	**758**	**649 J**	**289**	**354**	**437 J**	**270**	**320**	**380**	**310**	**280**	**390**	**440**	**158**	**88.5**	**37.9**	**390**	**310**	**350**	**300**	**370**	**330**	**320**	**310**	**280**	**260**	**270**	**360**	**280**	**310**	**300**	**290**
Vinyl chloride	ug/L	**2**	**3.8**	1.0	1.7	**788**	**362**	**276 J**	**230**	**280**	**140**	**140**	**99**	**150**	**230**	**3.3**	**<50**	**43.1**	**490**	**210**	**290**	**150**	**70**	**59**	**52**	**45**	**60**	**40**	**48**	**42**	**53**	**41**	**38**	**42**
Xylenes	ug/L	10,000	<1.0 U	6.0	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	52	<50 U	<50 U	<40 U	<50 U	<33 U	<50 U	<1.0	<50	<5.0	<100 U	<67 U	<100 U	<67 U	<20 U	<40 U	<25 U	<40 U	<2.0 U	<29 U	<3.3 U	<4.0 U	< 4.0 U	<4.0 U	< 27 U	< 2.7 U
Total VOCs	**ug/L**		**1,256**	**1,078**	**1,915**	**4,029**	**2,972**	**2,847**	**2,416**	**2,465**	**2,180**	**1,805**	**1,376**	**1,796**	**1,932**	**493**	**382.5**	**821.5**	**2,559**	**1,887**	**1,907**	**1,406**	**1,111**	**1,107**	**892**	**922**	**934**	**826**	**805**	**919**	**814**	**815**	**760**	**765**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
(2) Well GM-28R was installed on December 28, 2015.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.

Table A-3
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 1 Wells
RACER Trust
Moraine, Ohio

IRZ-1			GM-23																																
Constituents	**Units**	**MCL[1]**	**9/2/99**	**2/21/00**	**5/31/00**	**9/20/00**	**3/20/01**	**6/26/01**	**11/12/01**	**12/12/01**	**6/13/02**	**9/26/02**	**5/22/03**	**9/23/03**	**9/14/04**	**10/17/05**	**9/28/06**	**9/27/07**	**10/23/08**	**11/17/09**	**9/29/10**	**9/29/99**	**2/22/00**	**5/26/00**	**9/30/11**	**9/7/12**	**9/27/13**	**10/10/14**	**12/8/15**	**8/22/16**	**8/17/17**	**7/26/18**	**7/12/19**	**7/31/20**
Volatile Organic Compounds																																			
1,1,1-Trichloroethane	ug/L	200	7.2	<50 U	< 20	2.0	3.1	1.5	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<1.0	<50	<5.0	<20 U	<25 U	<1.0 U	<10 U	<1.0 U	<2.0 U	< 2.0 U	<1.0 U	< 40 U	< 2.5 U
1,1-Dichloroethane	ug/L		32.5	<50 U	12.8 J	16.3	17.9	3.7	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<560 U	<330 U	<200 U	<62 U	5.0 J	<22 U	<1.0	<50	<5.0	<20 U	<25 U	2.6	8.4 J	15	8.6	5.4	8.0	< 40 U	9.9
1,1-Dichloroethene	ug/L	7	**17.2**	<50 U	6.6 J	5.1	**15.9**	**16.3**	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<1.0	**<50**	<5.0	<20 U	<25 U	1.7	<10 U	0.47 J	1.1 J	1.4 J	0.81 J	< 40 U	< 2.5 U
Benzene	ug/L	5	1.9	<50 U	<20 U	<1.0 U	1.4	<1.0 U	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<1.0	**<50**	<5.0	<20 U	<25 U	0.28 J	<10 U	0.69 J	<2.0 U	< 2.0 U	0.47 J	< 40 U	< 2.5 U
cis-1,2-Dichloroethene	ug/L	**70**	**7,530**	**10,400 D**	**4,080 J**	**5,620**	**9,640**	**11,000**	**8,400**	**7,200**	**9,900**	**7,700**	**6,800**	**5,800**	**4,600**	**19,000**	**11,000**	**4,700**	**2,000**	**1,100**	**490**	14.8	**306**	**161**	**580**	**580**	**470**	**210**	**100**	**530**	**580**	**260**	**550**	**140**
Ethylbenzene	ug/L	700	<1.0 U	<50	<20 U	<1.0 U	<1.0 U	<1.0 U	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<1.0	<50	2.0	<20 U	<25 U	<1.0 U	<10 U	<1.0 U	<2.0 U	< 2.0 U	<1.0 U	< 40 U	< 2.5 U
Tetrachloroethene	ug/L	**5**	**6,250**	**7,280 J**	**6,200 J**	**3,470**	**2,910**	**8,600**	**15,000**	**14,000**	**8,400**	**10,000**	**12,000**	**12,000**	**6,700**	**2,300**	**370**	**280**	**71**	**19 J**	**50**	**91.5**	**50.5**	**17.5**	**57**	**33**	**37**	3.6 J	0.58 J	**8.0**	**30**	**8.4**	**22 J**	3.3
Toluene	ug/L	1000	<1.0 U	<50 U	<20 U	<1.0 U	<1.0 U	2.3	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<1.0	<50	1.1J	<20 U	<25 U	<1.0 U	<10 U	<1.0 U	<2.0 U	< 2.0 U	0.16 J	< 40 U	< 2.5 U
trans-1,2-Dichloroethene	ug/L	100	54.5	**118 J**	39.8 J	33.2	85.5	60.8	<210 U	<250 U	<170 U	<200 U	< 310 U	< 250 U	< 250 U	<560 U	270 J	130 J	58 J	31	16 J	<1.0	<50	<5.0	21	21 J	15	20	13	18	22	16	16 J	11
Trichloroethene	ug/L	**5**	**1,460**	**1,350 D**	**1,480 J**	**609**	**745**	**1,780 J**	**2,200**	**2,100**	**1,900**	**1,700**	**1,500**	**1,600**	**1,100**	**490 J**	**95 J**	**82 J**	<62 U	**8.3 J**	**17 J**	**44.1**	**<50**	**13.8**	**33**	**15 J**	**28**	4.1 J	5.0	**7.6**	**8.6**	5.0	**15 J**	**6.8**
Vinyl chloride	ug/L	**2**	**2,500**	**2,420 J**	**140 J**	**801**	**765**	**68**	**1200**	<500 U	**810**	**540**	**1700**	**690**	**870**	**2,800**	**4,100**	**2,600**	**2,100**	**1,100**	**500**	<1.0	**<50**	**136.0**	**840**	**390**	**210**	**220**	**120**	**280**	**360**	**210**	**250**	**190**
Xylenes	ug/L	10,000	<1.0 U	<50 U	<20 U	<1.0 U	<1.0 U	1.4	<420 U	<500 U	<330 U	<400 U	< 620 U	<500 U	<500 U	<1100 U	< 670 U	<400 U	<120 U	<40 U	<44 U	<1.0	<50	<5.0	<40 U	<50 U	<2.0 U	<20 U	<2.0 U	<4.0 U	< 4.0 U	<2.0 U	< 80 U	< 5.0 U
Total VOCs	**ug/L**		**17,853**	**21,568**	**11,959**	**10,557**	**14,184**	**21,534**	**26,800**	**23,300**	**21,010**	**19,940**	**22,000**	**20,090**	**13,270**	**24,590**	**15,835**	**7,792**	**4,229**	**2,263**	**1,073**	**150**	**357**	**331**	**1,531**	**1,039**	**764**	**466**	**255**	**853**	**1,007**	**509**	**853**	**361**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
(2) Well GM-28R was installed on December 28, 2015.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.

Table A-3
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 1 Wells
RACER Trust
Moraine, Ohio

IRZ-1			GM-28																				GM-28R[2]					
Constituents	**Units**	**MCL[1]**	**9/1/99**	**2/23/00**	**5/26/00**	**9/21/00**	**3/20/01**	**6/26/01**	**11/15/01**	**12/12/01**	**7/21/02**	**9/24/02**	**5/23/03**	**10/1/03**	**4/30/04**	**9/15/04**	**10/18/05**	**9/27/06**	**9/20/07**	**10/22/08**	**11/16/09**	**9/28/10**	**10/5/11**	**12/28/15**	**8/22/16**	**8/17/17**	**7/25/18**	**7/12/19**	**7/31/20**
Volatile Organic Compounds																												
1,1,1-Trichloroethane	ug/L	200	17.7	23.2	18.1	5.0	<1.0 U	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 5 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	<1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		3.3	4.2	11.8	9.9	<1.0 U	<1.0 U	<10 U	<5.0 UJ	<4.0 U	2.7	4.2	3.3	3.5	3.3	4.0	4.2	4.6	2.2 J	3.6	4.6	2.1	0.55 J	<1.0 U	0.25 J	<1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/L	7	<1.0 U	<1.0 U	3.8	<1.0 U	<1.0 U	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 5 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 5 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	<1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	**70**	**175**	**503**	**2,700**	37.0	7.7	**352**	<5.0 U	<2.2 UJ	<2.0 U	1.1	0.66	0.58	0.45 J	0.41 J	0.32 J	0.26 J	0.72 J	6.9	2.3	2.1	0.72 J	5.6	13	6.0	3.5	1.1	0.91 J
Ethylbenzene	ug/L	700	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.0 U	<1.0 U	0.28 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 5 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	**5**	**316**	**88.4**	**30.2**	2.3	2.8	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.0 U	0.95 J	<1.0 U	<1.0 U	0.88 J	<1.0 U	<1.0 U	<1.0 U	< 5 U	<1.0 U	<1.0 U	0.63 J	**49**	1.3	4.6	3.5	**13**	0.92 J
Toluene	ug/L	1000	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<10 U	<1.8UJ	<4.0 U	<1.3	1.0	1.0	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 5 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	<1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	9.2	9.7	36.5	22.3	17.6	<1.0 U	11	11 J	8.6	11	9.2	4.0	2.2	1.2	0.63 J	0.66 J	0.58 J	1.3 J	1.7	1.5	0.69 J	0.38 J	0.31 J	< 1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	**5**	**768**	**833**	**14.8**	1.6	1.8	<1.0 U	<10 U	<5.0 UJ	<4.0 U	0.86J	3.1	1.6	1.6	1.4	0.66 J	0.43 J	0.51 J	< 5 U	0.58 J	<1.0 U	0.41 J	**24**	0.29 J	0.33 J	0.30 J	0.35 J	< 1.0 U
Vinyl chloride	ug/L	**2**	**3.2**	<1.0 U	1.9	**12.4**	**2.6**	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.0 U	<1.0 U	0.53 J	<1.0 U	0.44 J	1.1	0.42 J	1.2	**6.5**	**3.3**	**2.2**	0.57 J	0.99 J	<1.0 U	0.72 J	0.70 J	< 1.0 U	< 1.0 U
Xylenes	ug/L	10,000	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<10 U	<5.0 UJ	<4.0 U	<1.2 U	0.87 J	1.6	<1.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<10 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**1,292**	**1,462**	**2,817**	**90.5**	**32.5**	**352**	**11.0**	**11.0**	**8.60**	**15.7**	**20.0**	**12.9**	**7.75**	**7.63**	**6.71**	**5.97**	**7.61**	**16.9**	**11.5**	**10.4**	**5.12**	**80.5**	**14.9**	**11.9**	**8.0**	**14.5**	**1.83**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
(2) Well GM-28R was installed on December 28, 2015.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.

Table A-4
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 3 West Wells
RACER Trust
Moraine, Ohio

IRZ-3 West			GM-32																
Constituents	**Units**	**MCL[1]**	**9/22/99**	**2/28/00**	**5/30/00**	**9/25/00**	**3/19/01**	**6/25/01**	**11/12/01**	**12/11/01**	**6/12/02**	**9/20/02**	**5/23/03**	**10/1/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/23/08**	**7/11/19**	**7/31/20**
Volatile Organic Compounds																					
1,1,1-Trichloroethane	ug/L	200	<1.0	<10	<100	<1.0	<50	9.2	<5.0	<100	<20	<10	< 1 U	<2.0	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	3.3	101	46.0J	35.9	<50	3.1	6.2	<100	12	9.7J	5.5	5.5	3 J	4.9 J	3.7 J	4.3 J	4 J	0.45 J	0.43 J
1,1-Dichloroethene	ug/L	7	<1.0	<10	<100	<1.0	<50	<1.0	<5.0	<100	<20	<10	< 1 U	<2.0	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	<1.0	<10	<100	<1.0	<50	<1.0	4.3J	<100	4.0	<10	1.6	1.5J	< 10 U	< 10 U	< 10 U	1.6 J	< 10 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	2.6	<10	<100	<1.0	<50	32.0	<2.5	<50	<10	<5	0.66	<1.0	< 5 U	< 10 U	< 10 U	< 5 U	< 10 U	0.34 J	< 1.0 U
Ethylbenzene	ug/L	700	<1.0	<10	<100	<1.0	<50	<1.0	0.79J	<100	<20	<10	0.65J	0.73J	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	1.2	<10	<100	<1.0	<50	37.6	<5.0	<100	<20	<10	< 1 U	<2.0	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	< 1.0 U	< 1.0 U*
Toluene	ug/L	1000	1.0	20.6	<100	10.4	<50	<1.0	12	<100	4.9	<10	2.2	2.3	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	4.2	111	41.0J	20.3	<50	2.5	2.9	<50	3.0	<5	1.6	1.0	< 5 U	< 10 U	< 10 U	1 J	< 10 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	3.2	<10	<100	<1.0	<50	107	<5.0	<100	<20	<10	< 1 U	<2.0	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	3.0	<10	<100	<1.0	<50	<1.0	1.1J	<100	3.0	<10	< 1 U	<2.0	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	0.26 J	< 1.0 U*
Xylenes	ug/L	10,000	<1.0	<10	<100	<1.0	<50	<1.0	3.0J	<100	<20	<10	2.1	3.6	< 10 U	< 20 U	< 20 U	3.4 J	< 20 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**18.5**	**232.6**	**87**	**66.6**	**ND**	**191.4**	**30.29**	**ND**	**26.9**	**9.7**	**14.31**	**14.63**	**3**	**4.9**	**3.7**	**10.3**	**4**	**1.05**	**0.43**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits.
ND - Not detected

Table A-4
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 3 West Wells
RACER Trust
Moraine, Ohio

IRZ-3 West			GM-8																					
Constituents	**Units**	**MCL[1]**	**3/6/98**	**9/20/99**	**9/26/00**	**11/9/01**	**9/20/02**	**10/1/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/23/08**	**11/16/09**	**9/27/10**	**9/29/11**	**9/6/12**	**9/26/13**	**10/7/14**	**12/8/15**	**8/22/16**	**8/16/17**	**7/24/18**	**7/11/19**	**7/31/20**
Volatile Organic Compounds																								
1,1,1-Trichloroethane	ug/L	200	6.7	1.9	<1.0 U	0.40 J	<2.0 U	<2.0 U	<1.0 U	<1.0 U	<5.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	49.3	30.2	36.5	40	63	48	15	16	18	9.1	1.7	2.9	3.0	1.9	0.66 J	0.88 J	0.59 J	0.43 J	0.37 J	.44 J	0.47 J	0.40 J	< 1.0 U
1,1-Dichloroethene	ug/L	7	1.0	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<2.0 U	<1.0 U	<1.0 U	<5.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	2.3	3.4	1.1	0.78 J	**5.5**	**5.4**	4.2	3.5	2.1 J	2.4	**6.8**	3.9	4.7	3.5	3.5	1.9	1.2	<1.0 U	0.79 J	0.86 J	1.3	1.6	1.3
cis-1,2-Dichloroethene	ug/L	70	56.1	26.2	1.5	2.0	5.5	<1.0 U	<0.5 U	0.24 J	2.1 J	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.27 J	0.23 J	0.31 J	<1.0 U	<1.0 U	0.30 J	0.27 J	< 1.0 U
Ethylbenzene	ug/L	700	28.9	20.7	12.5	0.40 J	7.5	11	19	29	<5.0 U	1.7 J	8.6	5.5	0.33 J	5.4	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**20.0**	**14.8**	<1.0 U	<1.0 U	<2.0 U	<2.0 U	<1.0 U	<1.0 U	<5.0 U	<2.0 U	<1.0 U	0.34 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U*
Toluene	ug/L	1000	<1.0 U	<1.0 U	<1.0 U	<1.0 U	1.8 J	1.2 J	<1.0 U	0.39 J	<5.0 U	<2.0 U	<1.0 U	0.13 J	0.18 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	10.1	12.0	5.4	3.6	9	4.4	1.1	0.99 J	1 J	0.9 J	0.27 J	0.22 J	0.29 J	0.20 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**95.2**	**30.4**	**6.6**	4.4	<2.0	<2.0 U	<1.0 U	<1.0 U	<5.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.21 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	**10.1**	**8.4**	**2.4**	1.9	**5.8**	<2.0 U	0.48 J	0.73 J	3.2 J	<2.0 U	0.48 J	<1.0 U	0.44 J	0.24 J	<1.0 U	< 1.0 U	0.58 J	0.53 J	<1.0 U	<1.0 U	0.91 J	0.25 J	< 1.0 U*
Xylenes	ug/L	10,000	10.3	2.3	1.9	0.39 J	1.5 J	2.0	1.1	<2.0 U	<10 U	0.9 J	3.9	1.3 J	<2.0 U	0.99 J	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.31 J	<2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**290**	**150**	**67.9**	**53.9**	**99.6**	**72**	**40.9**	**50.9**	**26.4**	**15**	**21.8**	**14.3**	**8.94**	**12.2**	**4.16**	**3.26**	**2.60**	**1.27**	**1.16**	**1.61**	**2.98**	**2.52**	**1.3**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits.
ND - Not detected

Table A-4
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 3 West Wells
RACER Trust
Moraine, Ohio

IRZ-3 West			GM-6																					
Constituents	**Units**	**MCL[1]**	**3/6/98**	**9/20/99**	**9/26/00**	**11/9/01**	**9/20/02**	**10/2/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/24/08**	**11/11/09**	**9/27/10**	**9/29/11**	**9/6/12**	**9/25/13**	**10/7/14**	**12/8/15**	**8/22/16**	**8/16/17**	**7/24/18**	**7/11/19**	**7/31/20**
Volatile Organic Compounds																								
1,1,1-Trichloroethane	ug/L	200	36.2	24.6	12.1	3.9	1.4J	0.19J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	35.3	33.2	13.0	14	60	20	18	21	16	26	< 8.4 U	6.9	6.2	4.5	< 1.0 U	0.66 J	0.36 J	<1.0 U	<1.0 U	< 1.0 U	0.26 J	0.23 J	< 1.0 U
1,1-Dichloroethene	ug/L	7	<1.0 U	1.2	<1.0 U	<2.0 U	<2.0 U	<1.0 U	< 1 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	<1.0 U	<1.0 U	<1.0 U	<2.0 U	2.2	1.0	1.7	0.49 J	<1.0 U	0.42 J	1.2	1.3	1.1	1.0	2.5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	**82.4**	52.9	41.0	8.2	43	13	10	20	18	16	6.7	3.4	4.9	3.7	< 1.0 U	1.9	0.23 J	0.26 J	0.29 J	0.33 J	0.40 J	0.38 J	< 1.0 U
Ethylbenzene	ug/L	700	<1.0 U	<10 U	<1.0 U	<2.0 U	<2.0 U	0.22 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**94.0**	**81.4**	**51.5**	**14**	**14**	**11**	2.6	0.34 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.38 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*
Toluene	ug/L	1000	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<2.0 U	0.83 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	2.4	2.0	2.2	1.8	8.6	2.5	1.9	2.1	1.6	2.6	1.3	0.68 J	0.89 J	0.84 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**119**	**78.2**	**56.6**	**48**	**33**	**23**	**5.7**	1.4	0.35 J	0.34 J	<1.0 U	3.8	**6.6**	<1.0 U	<1.0 U	0.26 J	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	**2.3**	1.6	**3.7**	1.9 J	**12**	**3.3**	**3**	**11**	**7.3**	**6.7**	**2.1**	1.2	1.6	1.5	<1.0 U	0.79 J	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	0.65 J	0.25 J	< 1.0 U*
Xylenes	ug/L	10,000	<1.0 U	<10 U	<1.0 U	<2.0 U	<2.0 U	1.0	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**372**	**275**	**180**	**91.8**	**174**	**76.0**	**42.9**	**56.3**	**43.3**	**52.1**	**11.3**	**17.3**	**21.7**	**11.5**	**2.50**	**3.61**	**0.59**	**0.26**	**0.29**	**0.33**	**1.31**	**0.86**	**ND**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits.
ND - Not detected

Table A-5
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 3 East Wells
RACER Trust
Moraine, Ohio

IRZ-3 East			GM-21																												
Constituents	**Units**	**MCL[1]**	**9/22/99**	**2/23/00**	**5/26/00**	**9/22/00**	**3/19/01**	**6/25/01**	**11/13/01**	**12/11/01**	**6/12/02**	**9/25/02**	**5/22/03**	**9/24/03**	**9/14/04**	**10/17/05**	**9/20/06**	**12/1/06**	**9/26/07**	**10/3/08**	**11/16/09**	**9/28/10**	**9/29/11**	**9/7/12**	**9/26/13**	**10/9/14**	**12/11/15**	**8/22/16**	**8/17/17**	**7/25/18**	**7/12/19**	**7/31/20**
Volatile Organic Compounds																															
1,1,1-Trichloroethane	ug/L	200	53.1	15.4	27.9	15.7	7	7.7	6.9	1.2	23	31	18	31	26	4.3	12	4.7	8.5	8.7	2.4	0.75 J	1.0	<2.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	9.0	5.8	6.8	5.6	5.1	4.1	3.8J	0.71 J	5.4	5.0 J	4.1 J	6.9 J	4.2 J	3.4	8.6	6.4	18	15	22	20	16	18	9.5	16	12	<1.0 U	11	9.3	6.3	7.0
1,1-Dichloroethene	ug/L	7	3.9	1.6	2.4	1.6	1.2	<1.0 U	<5.0 U	<1.0 U	3.6	2.6 J	<6.7 U	2.0 J	3.1 J	<1.0 U	0.19 J	0.2 J	< 1.4 U	0.33 J	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<5.0 U	<1.0 U	<6.0 U	<6.7 U	<6.7 U	<8.0 U	<9.1 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	< 1.4 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	66	36	48	39	40	38	39	6.5	48	43	**130**	**100**	56	20	14	8.2	26	38	7.8	3.9	9.9	8.5	5.1	12	22	<1.0 U	19	23	10	11
Ethylbenzene	ug/L	700	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<5.0 U	<1.0 U	<6.0 U	<6.7 U	<6.7 U	<8.0 U	<9.1 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	< 1.4 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<5.0 U	<1.0 U	<6.0 U	<6.7 U	<6.7 U	<8.0 U	<9.1 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	0.56 J	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*
Toluene	ug/L	1000	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<5.0 U	<1.0 U	<6.0 U	<6.7 U	<6.7 U	<8.0 U	<9.1 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	< 1.4 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	7.8	9.3	7.4	13	16	16	15	2.8	8.3	5.1	2.2 J	2.9 J	7.9	22	4.3	4.8	2.5	4.7	4.4	3.0	1.9	1.7 J	1.1	1.6	1.6 J	<1.0 U	1.5	1.6	1.0	1.3
Trichloroethene	ug/L	5	**28.7**	**283**	**311**	**189**	**169**	**158**	**160**	**28**	**210**	**230**	**79**	**200**	**180**	1.8	**5.9**	0.8 J	2.8	**18**	2.4	3.2	**19**	**14**	**12**	**18**	**16**	<1.0 U	2.4	3.9	2.1	1.7
Vinyl chloride	ug/L	2	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<5.0 U	<1.0 U	<6.0 U	<6.7 U	<6.7 U	<8.0 U	<9.1 U	**13**	**9.3**	**4.7**	**12**	**19**	**6.6**	**3.6**	**6.2**	**5.1**	**3.8**	**5.8**	**8.9**	<1.0 U	**9.7**	**15**	**6.6**	**8.0**
Xylenes	ug/L	10000	<1.0 U	2.3	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<5.0 U	<1.0 U	<6.0 U	<6.7 U	<6.7 U	<8.0 U	<9.1 U	<2.0 U	<2.0 U	<2.0 U	<'2.9 U	< 2.9 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**169**	**353**	**403**	**264**	**238**	**223**	**225**	**39.2**	**298**	**317**	**233**	**343**	**277**	**64.5**	**54.3**	**29.8**	**69.8**	**104**	**45.6**	**34.5**	**54.0**	**47.3**	**31.5**	**53.4**	**60.5**	**ND**	**43.6**	**52.8**	**26.0**	**29.0**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
J - Value is estimated.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.
ND - Not detected

Table A-5
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 3 East Wells
RACER Trust
Moraine, Ohio

IRZ-3 East			GM-2																			
Constituents	**Units**	**MCL[1]**	**9/20/99**	**9/25/00**	**11/9/2001**	**9/20/02**	**10/2/03**	**9/14/04**	**10/19/05**	**9/20/06**	**09/18/07**	**9/24/08**	**11/11/09**	**9/27/10**	**9/29/11**	**9/6/12**	**9/25/13**	**10/7/14**	**12/8/15**	**8/19/16**	**7/12/19**	**7/31/20**
Volatile Organic Compounds																						
1,1,1-Trichloroethane	ug/L	200	5.5	5.7	6.1	0.75 J	0.21 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U
1,1-Dichloroethane	ug/L	--	1.4	3.7	6.1	3.4	1.7	1.6	2.0	2.1	1.4	< 1.0 U	1.0	1.2	0.92 J	0.71 J	1.0	< 1.0 U	0.40 J	0.43 J	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 3.3 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 3.3 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	8.4	39	26	7.6	4.7	5.6	6.8	7.7	4.9	6.7	3.2	3.8	9.0	15	13	1.6	3.2	8.9	0.33 J	< 1.0 U
Ethylbenzene	ug/L	700	<10	< 1.0 U	< 3.3 U	< 1.0 U	0.21 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**6.0**	**7.7**	**8.4**	**8.7**	**5.7**	4.0	3.6	2.6	1.6	1.3	0.90 J	0.44 J	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	3.6	**8.5**	**28**	**30**
Toluene	ug/L	1000	< 1.0 U	< 1.0 U	< 3.3 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	1.3	1.1 J	0.37 J	< 0.50 U	0.23 J	0.26 J	0.34 J	0.28 J	0.19 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**62**	**83**	**65**	**26**	**13**	**6.2**	4.6	**5.1**	2.3	2.4	1.4	0.95 J	0.75 J	0.96 J	0.70 J	2.9	**6.7**	**6.3**	**7.4**	3.9
Vinyl chloride	ug/L	2	< 1.0 U	1.7	< 3.3 U	< 1.0 U	0.46 J	< 1.0 U	0.24 J	0.61 J	1.1	< 1.0 U	**2.3**	**2.5**	0.69 J	1.2	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*
Xylenes	ug/L	10000	< 10 U	< 1.0 U	< 3.3 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**83.3**	**142**	**113**	**46.8**	**26.0**	**17.6**	**17.5**	**18.5**	**11.6**	**10.6**	**8.8**	**8.9**	**11.4**	**18.3**	**16.6**	**4.5**	**13.9**	**24.1**	**36.1**	**33.9**

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) MCL not listed for 1,1-dichloroethene.
Bold - Result above MCL.
Carbon source introductions began in December 1999.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
J - Value is estimated.
Samples collected in September and October 1999 represent baseline conditions.
UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.
U - Constituent not detected above laboratory reporting limit shown.
ND - Not detected

Table A-6
Summary of Annual Groundwater Analytical Results from In-Situ Reactive Zone 4 East Wells
RACER Trust
Moraine, Ohio

IRZ-4 East			GM-19S																												
Constituents	**Units**	**MCL[1]**	**9/20/99**	**5/24/00**	**9/22/00**	**3/19/01**	**6/25/01**	**11/12/01**	**6/12/02**	**9/26/02**	**5/21/03**	**09/25/03**	**09/13/04**	**10/18/05**	**09/21/06**	**09/17/07**	**09/23/08**	**11/17/09**	**4/7/10**	**9/27/10**	**9/29/11**	**41158**	**9/26/13**	**10/7/14**	**12/8/15**	**8/22/16**	**8/16/17**	**7/24/18**	**7/12/19**	**2/13/20**	**7/31/20**
Volatile Organic Compounds																															
1,1,1-Trichloroethane	ug/L	200	16	17.9	14.5	11.9	9.6	7.6	7.2	6.3	12	13	14	13	9.7 J	0.59 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	7.7	7.0	4.4	4.1	2.9	2.9 J	3.7	6.3	8.4	8.3	8.1	9.0	7 J	10	13	12	9.6	9.5	10.0	8.4	8.3	7.6	3.1	3.4	2.3	2.3	1.9	1.2	1.1
1,1-Dichloroethene	ug/L	7	1.0	1.1	<1.0 U	<1.0 U	<1.0 U	<3.3 U	0.98	<4.0 U	<4.0 U	1.6 J	1.9 J	1.2 J	<22 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<3.3 U	0.62	<4.0 U	<4.0 U	<5.0 U	<4.0 U	<1.7 U	<22 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	34.6	42.9	37.6	38.2	31.5	26	28	39	**81**	**89**	61	29	**660**	0.3 J	0.68 J	0.27 J	0.27 J	< 1.0 U	5.3	7.3	26	37	37	44	39	31	32	32	28
Ethylbenzene	ug/L	700	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<3.3 U	<3.3 U	<4.0 U	<4.0 U	<5.0 U	<4.0 U	<1.7 U	<22 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**46**	**57.1**	**68**	**67.6**	**71.7**	**64**	**60**	**52**	**62**	**62**	**71**	**95**	**9.1 J**	1.5	0.94 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	<1.0 U	<1.0 U	< 1.0 U	0.37 J	1.0	2.6	1.5
Toluene	ug/L	1000	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<3.3 U	<3.3 U	<4.0 U	<4.0 U	<5.0 U	<4.0 U	<1.7 U	<22 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.4 U	<1.0 U	<1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	2.3	2.7	2.6	3.0	2.4	2.0	2.3	2.7	2.5	2.9	2.4	1.0 J	10 J	0.29 J	0.52 J	0.37 J	0.45 J	0.46 J	1.1	0.84 J	1.1	0.91 J	0.66 J	0.64 J	0.52 J	0.66 J	0.52 J	0.41 J	< 1.0 U
Trichloroethene	ug/L	5	**71.1**	**104**	**104**	**107**	**121**	**97**	**110**	**110**	**120**	**140**	**120**	**140**	**11 J**	0.46 J	3	0.22 J	<1.0 U	<1.0 U	<1.0 U	0.30 J	0.46 J	0.81 J	1.3	1.8	1.9	2.4	2.3	3.2	2.7
Vinyl chloride	ug/L	2	<1.0 U	1.4	<1.0 U	<1.0 U	<1.0 U	<3.3 U	0.70	**5.2**	<4.0 U	<5.0 U	<4.0 U	1.8	<22 U	<1.0 U	**9.3**	<1.0 U	<1.0 U	<1.0 U	**12**	**10**	**17**	**15**	**6.4**	**4.6**	**4**	**8.8**	**3.6**	**2.1**	**2.9**
Xylenes	ug/L	10000	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<3.3 U	<3.3 U	<4.0 U	<4.0 U	<5.0 U	<4.0 U	<3.3 U	<44 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	< 2.9 U	<2.0 U	<2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**		**179**	**234**	**231**	**232**	**239**	**200**	**214**	**222**	**286**	**317**	**278**	**290**	**707**	**13.1**	**27.4**	**12.9**	**10.3**	**10.0**	**28.4**	**26.8**	**52.9**	**61.3**	**48.5**	**54.4**	**47.7**	**45.5**	**41.3**	**42**	**36.2**

NOTES:

< - Constituent not detected above laboratory reporting limit shown.

(1) MCL not listed for 1,1-dichloroethene.

Bold - Result above MCL.

Carbon source introductions began in December 1999.

J - Value is estimated.

MCL - Maximum Contaminant Level.

ug/L - Micrograms per Liter.

Samples collected in September and October 1999 represent baseline conditions.

UJ - Constituent not detected above laboratory reporting limit; reporting limit estimated.

U - Constituent not detected above laboratory reporting limit shown.

Table A-7
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 1
RACER Trust
Moraine, Ohio

IRZ-1		GM-29																					
Constituents	**Units**	**9/1/99**	**2/22/00**	**5/26/00**	**9/21/00**	**3/20/01**	**6/26/01**	**11/13/01**	**12/12/01**	**6/13/02**	**9/25/02**	**5/22/03**	**9/24/03**	**9/15/04**	**9/29/99**	**2/22/00**	**5/26/00**	**10/17/05**	**9/28/06**	**9/26/07**	**10/6/08**	**11/17/09**	**9/29/10**
Inorganics & TOC																							
Nitrate	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.30 U	<0.30 U	<0.30 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.30 U	39.0	37.9	NA	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.552	0.136	0.35	0.248	0.203	0.136	0.17 B	0.17	1.5 B	0.18 B	0.67 J	0.20 J	0.17	0.422	18.7	9.78	0.18	1.3	0.3 J	< 0.19 U	0.296	0.451
Manganese (Dissolved)	mg/L	0.13	0.101	0.177	0.125	0.116	0.128	0.17 B	0.15	0.13 B	0.16 B	0.15 J	0.21 J	0.15	0.203	13.2	10.7	0.14	0.12	0.16 J	< 0.16 U	0.118	0.113
Iron (Total)	mg/L	18	1.43	10.1	8.48	5.84	2.52	3.4	3.8	47.8 B	3.8	28.6	4.9	3.2	6.78	566	374	4.6	<1.0 U	8.9	< 5.4 U	13.8	19.6
Iron (Dissolved)	mg/L	0.24	0.13	2.78	3.09	<0.10 U	2.03	3.3	2.9	2.2 B	2.8	2.4	3.6	2.7	<0.10 U	366	417	3.7	2.9	3.4	< 3.9 U	3.3	2.97
Iron (Ferrous)	mg/L	0.02	0.0	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	90	126	31	29	31	37	65	48	63	76	91 J	52	14 J	61	508	140	51	70	65	< 5 UJ	68	72
Sulfide	mg/L	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	1.3	<1.0 U	<1.0 U	<1.0 U	0.54 B	1.6	<1.0 U	<1.0 U	<1.0 U	5.18	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.56 J	<1.0 U
Total Organic Carbon	mg/L	18	11	22	<1.0 U	7.57	7.3	10	10	8.0	8.0	7.0	9.0	9.0	6.0	14,100	5550	11	13	15 J	16	9.0	8.0
Chloride	mg/L	254	426	508	373	337	262	600 B	460	490	490	490	560 J	540	397	1,560	1080	370	380	360 J	<1.0 U	210	160
Permanent Gases																							
Carbon Dioxide	mg/L	46.52	49.87	44.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.96	999.4	918.87	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	1.02	0.66	1.41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.23	0.20	0.17	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	20.29	18.7	15.61	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.51	7.13	6.19	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.012	0.0077	0.00017	1.62	1.30	1.5	0.610	1.2	0.56	1.1	0.6	1.5	3.8	0.0043	0.026	0.88	13	10	NA	16	8.1	5.7
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																							
Ethane	ng/L	5,641	1,861	751	639	460	17,000	20,000	28,000	14,000	16,000	7,400	9,900	13,000	1218	1495	770	170,000	350,000	NA	370,000	360,000	340,000
Ethene	ng/L	9,769	1,275	12,098	441,796	160,000	130,000	230,000	180,000	48,000	140,000	150,000	200,000	1,700,000	2458	1980	11737	1,600,000 J	750,000	NA	420,000	140,000	59,000
Field Parameters																							
pH	S.U.	6.99	7.02	6.86	7.24	7.31	7.20	7.47	7.57	7.14	7.22	6.32	6.88	6.85	7.24	5.76	5.48	6.80	6.94	6.63	7.1	6.91	7.09
Specific Conductivity	umhos/cm	1,502	3,044	2,388	1,942	1,733	1,291	2,703	2,860	1,977	2,354	2,303	2,278	2,580	2,033	28,360	11,895	2,200	2,170	2,350	1,870	1,264	1,427
Dissolved Oxygen	mg/L	0.35	0.51	0.45	3.44	8.20	0.40	0.22	0.01	3.57	1.40	1.38	0.13	0.04	0.82	2.84	4.32	0.00	0.29	0.4	0.11	0.16	2.00
Redox Potential	mV	-526.6	19.6	-105.4	-35.0	-158.2	-166.4	-129.7	-168	-122.9	-91.3	-157.8	-118.6	-134	175	-118.4	-65.4	-153	-168	-139	-54	-140.1	-163
Temperature	°C	17.8	16.9	17.97	17.64	20.04	20.47	16.42	17.13	19.33	17.63	18.23	16.81	16.4	18.33	20.24	21.74	16.8	16.69	18	16.78	16.50	18.00

NOTES:
< - Constituent not detected above laboratory reporting limit.
(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
F2 - MS/MSD RPD (relative perect difference) exceeds control limits.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
NA - Not Analyzed.
Samples collected in September 1999 represent baseline conditions.
S.U. - Standard Units.
U - Constituent not detected above laboratory reporting limit shown.

Table A-7
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 1
RACER Trust
Moraine, Ohio

IRZ-1		GM-29 (Continued)									
Constituents	**Units**	**9/30/11**	**9/26/12**	**9/27/13**	**10/9/14**	**12/8/15**	**8/22/16**	**8/17/17**	**7/25/18**	**7/12/19**	**7/31/20**
Inorganics & TOC											
Nitrate	mg/L	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	NA	NA	NA	NA	< 0.100 UH	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.18	0.170	0.190	0.190	0.22	0.14	180	0.15	0.12	NA
Manganese (Dissolved)	mg/L	0.11	0.110	0.110	0.130	0.12	0.13	140	0.12	0.17	NA
Iron (Total)	mg/L	6.3	5.0	6.5	6.4	7.3	4.4	5.8	4.6	3.3	NA
Iron (Dissolved)	mg/L	2.4	2.3	2.4	3.6	4.0	4.1	4.1	3.6	4.5	NA
Iron (Ferrous)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	64	58	55	41	49	42	43	49	51	NA
Sulfide	mg/L	<1.0 U	0.80 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	<1.0 U	< 1.0 U	NA
Total Organic Carbon	mg/L	8.5	9.4	12	16	12	14	5.9	8.8	NA	9.3
Chloride	mg/L	130	130 B	140	150	150 B	140	140	120	84	NA
Permanent Gases											
Carbon Dioxide	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	3.1	3.7	4.5	6.0	5.9	6.7	6.2	4	3.3	5.2
Carbon Monoxide	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan											
Ethane	ng/L	180,000	160,000	150,000	180,000	170,000	160,000	140,000	110,000	100,000	110,000
Ethene	ng/L	20,000	18,000	17,000	16,000	16,000	17,000	12,000	7,400	6,200	7,500
Field Parameters											
pH	S.U.	6.59	6.69	6.87	6.94	7.19	6.93	6.75	6.90	6.71	6.89
Specific Conductivity	umhos/cm	1,651	960	1,302	1,341	1,460	1,340	1,300	1,090	1,091	989
Dissolved Oxygen	mg/L	0.15	0.70	0.21	0.11	0.00	0.26	3.35	NA	0.29	1.44
Redox Potential	mV	-14.2	-60	-108	-102.1	-124.0	-155.0	-125.0	-183.0	-96.0	-83.1
Temperature	°C	21.1	21.0	24.0	17.2	16.7	10.9	19.5	16.7	17.8	21.8

NOTES:
< - Constituent not detected above laboratory reporting limit.
(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
F2 - MS/MSD RPD (relative perect difference) exceeds control limits.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
NA - Not Analyzed.
Samples collected in September 1999 represent baseline conditions.
S.U. - Standard Units.
U - Constituent not detected above laboratory reporting limit shown.

Table A-7
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 1
RACER Trust
Moraine, Ohio

ARCADIS

IRZ-1		GM-23																								
Constituents	**Units**	**9/2/99**	**2/21/00**	**5/31/00**	**3/20/01**	**6/13/02**	**9/26/02**	**5/22/03**	**9/23/03**	**9/14/04**	**10/17/05**	**9/28/06**	**9/27/07**	**10/23/08**	**11/17/09**	**9/29/10**	**9/30/11**	**9/7/12**	**9/27/13**	**10/10/14**	**12/5/15**	**8/22/16**	**8/17/17**	**7/26/18**	**7/12/19**	**7/31/20**
Inorganics & TOC																										
Nitrate	mg/L	0.08	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0 U	NA	NA	NA	NA
Nitrite	mg/L	3.83	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.30 U	0.94	2.84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.550 H	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	4.71	0.887	0.121	0.469	1.5 J	1.0 J	1.5 J	1.6 J	1.3 J	0.79	1.5	1.4 J	0.89	0.539	0.508	0.57	0.410 B	0.450	0.250 B	0.14	0.18	0.31	0.24	0.33	NA
Manganese (Dissolved)	mg/L	0.346	0.841	0.101	0.311	1.3 J	0.68 J	1.5 J	1.7 J	1.2 J	0.81	1.5	1.3 J	0.90	0.516	0.492	0.5	0.380 B	0.440	0.240 B	0.22	0.17	300	0.22	0.38	NA
Iron (Total)	mg/L	13.6	0.53	0.18	0.48	0.16 J	0.63	0.50	0.14	0.11	30.7	13.6	10.8	10.1	5.51	5.72	7.5	4.8	3.6	4.0 B	4.2	4.5	3.6	3.2	2.8	NA
Iron (Dissolved)	mg/L	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	34.2	13.2	10	10	5.21	5.33	6	4.7	3.7	4.1 B	5.8	4.6	3.2	2.8	2.7	NA
Iron (Ferrous)	mg/L	4.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	72	650	8040	1440	920	810	310 J	650	430 J	120	850	590	490	130	160	200	74	120	34	15	34	61	38	60	NA
Sulfide	mg/L	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.67 B	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.73 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.59 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	NA
Total Organic Carbon	mg/L	19	25	19	10.8	15 J	15	15	13	10 J	360	11	9.0	9.0	7.0	9.0	6.6	7.2	6.4	7.7	6.9 B	6.2	5.9	6.6	NA	6.6
Chloride	mg/L	118	143	85	232	180	190	220	140 J	220	260	220	210	220	100	43	65	97 B	39	150 B	180 B	120	71	130	81	NA
Permanent Gases																										
Carbon Dioxide	mg/L	88.47	264.8	323.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	0.96	1.56	17.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	20.22	13.75	3.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.12	0.72	0.021	0.78	1.6	2.1	2.7	1.8	1.5	1.3	0.91	0.64	1.9	1.7	2.5	2.0	2.6	0.84	5.5	5.4	4.5	2.6	3.7	2.8	4.8
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																										
Ethane	ng/L	6,878	14,644	1,037	11,000	25,000	32,000	44,000	23,000	17,000	16,000	12,000	7,100	21,000	31,000	36,000	25,000	71,000	16,000	100,000	88,000	84,000	71,000	95,000	57,000	110,000
Ethene	ng/L	580,916	439,458	569	260,000	230,000	230,000	1,200,000	270,000	260,000	500,000	900,000	370,000 J	960,000	2,100,000	1,700,000	230,000	74,000	16,000	74,000	140,000	76,000	28,000	26,000	24,000	53,000
Field Parameters																										
pH	S.U.	6.80	6.62	6.31	6.64	6.81	6.76	5.59	6.73	7.04	5.66	6.69	6.34	7.74	6.80	6.89	6.52	9.13	6.76	6.98	7.43	6.89	6.37	6.9	6.94	7.07
Specific Conductivity	umhos/cm	1,160	2,856	6,720	3,448	2,290	2,390	1,683	2,258	2,130	2,570	2,740	2,470	1,465	1,184	1,395	1,812	1,310	1,228	1,321	1,530	1,330	1,110	1,180	890	1,125
Dissolved Oxygen	mg/L	0.65	0.78	10.48	8.38	4.23	0.42	1.76	0.85	0.00	0.00	0.40	0.44	0.11	0.16	0.23	0.54	2.83	0.40	0.23	0.00	0.40	5.20	NA	0.43	1.22
Redox Potential	mV	122.2	158.7	194.2	160.4	346.5	215.6	247.9	198.8	57	-108	-108	-91	189	-90.1	-104.2	-52	-161	-49	-63.8	-79	-114	-164	NA	-61.0	-63.0
Temperature	°C	17.89	17.6	26.45	19.08	16.40	19.06	17.91	17.38	16.30	16.50	16.78	17.50	17.12	17.15	18.89	17.40	22.5	24.7	16.7	16.7	18.5	18.9	16.7	17.3	22.3

NOTES:
< - Constituent not detected above laboratory reporting limit.
(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
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Carbon source introductions began in December 1999.
F2 - MS/MSD RPD (relative perect difference) exceeds control limits.
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NA - Not Analyzed.
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S.U. - Standard Units.
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Table A-7
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 1
RACER Trust
Moraine, Ohio

ARCADIS

IRZ-1		GM-28																						GM-28R[1]					
Constituents	**Units**	**9/1/99**	**2/23/00**	**5/26/00**	**9/21/00**	**3/20/01**	**6/26/01**	**11/15/01**	**12/12/01**	**7/21/02**	**9/24/02**	**5/23/03**	**10/1/03**	**4/30/04**	**9/15/04**	**10/18/05**	**9/27/06**	**9/20/07**	**10/22/08**	**11/16/09**	**9/28/10**	**10/5/11**	**12/28/15**	**8/22/16**	**8/17/17**	**7/25/18**	**7/12/2019**	**7/31/20**
Inorganics & TOC																													
Nitrate	mg/L	0.08	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA
Nitrite	mg/L	0.06	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.30 U	<0.30 U	0.68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	3.2	1.15	6.26	4.1	0.594	2.24	0.58	0.47	1.1	0.48 B	0.69 J	0.42 J	0.34	0.37	0.45	0.46	0.44 J	1.4	0.468	0.468	0.72	0.63	0.40	0.32	0.29	0.22	NA
Manganese (Dissolved)	mg/L	0.068	0.449	6.71	3.94	0.477	1.76	0.61	0.49	1.1	0.41 B	0.29 J	0.40 J	0.32	0.36	0.45	0.43	0.43 J	1.5	0.444	0.466	0.49	0.67	0.38	0.30	0.25	0.22	NA
Iron (Total)	mg/L	106	25.3	22.7	58.9	29.6	59	23.6	23.5	36.2	28.7	47.9	23.4 J	17.6	15.7	16.1	14.5	11.7	23.4	11.3	11.6	22	4.6	5.6	5.7	5.9	2.9	NA
Iron (Dissolved)	mg/L	<0.10	0.59	23.3	48.3	2.65	49.8	23.3	23.7	34.7	23.4	16.7	22.4 J	16.4	15.1	15.2	13.1	10.7	23.7	10.2	10.6	5.5	3.5	4.6	3.7	4.5	2.6	NA
Iron (Ferrous)	mg/L	0.0	0.03	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	89	43	<5.0 U	<5.0 U	9.0	106	<5.0 U	<5.0 U	<5.0 U	18	65J	31J	89	93 J	91	75	77	33	55	45	41	33	42	29	24	29	NA
Sulfide	mg/L	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	1.5	<1.0 U	2.0	4.3	2.5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	NA	<1.0 U	<1.0 U	<1.0 U F2	< 1.0 U	NA
Total Organic Carbon	mg/L	15	24	742	571	90.0	360	74	68B	140	23	15	17	15 J	8.0	10	7.0	8.0 J	310	6.0	7.0	9.1	3.9	4.2	4.8	6.7	NA	1.5
Chloride	mg/L	208	664	805	782	1030	508	730B	560	370	450	350	270 J	320	340	320	320	300 J	260	220	170	130	70	61	12	18	NA	NA
Permanent Gases																													
Carbon Dioxide	mg/L	41.52	63.57	16.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	2.32	0.59	0.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	19.42	16.39	19.82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.002487	0.001832	0.21	1.70	13.0	13.0	13	20	19	14	8.9	11	7.9	6.6	2.8	2.5	2.3	2.9	4.2	2.3	0.76	0.69	0.36	0.86	1.8	0.74	0.11
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																													
Ethane	ng/L	750	493	865	1,198	42,000	39,000	91,000	98,000	420,000	300,000	310,000	230,000	160,000	150,000	81,000	73,000	72,000	52,000	73,000	53,000	14,000	1,200	290	580	1200	380	230 J
Ethene	ng/L	48	98	646	1,794,606	57,000	5,000	1,100	1,400	8,800	12,000	74,000	430	160	54	<210 U	<25 U	62	9,300	<200 U	150	86	240	27 J	52 J	2200	82 J	< 1000 U
Field Parameters																													
pH	S.U.	7.02	6.92	7.01	7.18	7.1	6.64	6.50	7.45	6.84	7.24	6.86	6.80	NA	6.85	5.47	7.08	6.72	6.49	7.04	7.16	NA	6.79	6.95	6.23	7.00	6.85	7.21
Specific Conductivity	umhos/cm	1,359	3,124	4,402	4,538	3,724	3,216	3,136	3,700	2,187	2,195	2,132	1,501	NA	2,030	2,230	1,880	2	1,428	1,821	1,615	NA	1080	911	681	593	574	444
Dissolved Oxygen	mg/L	0.95	1.45	2.52	6.78	4.36	0.41	0.83	0.20	0.68	0.35	1.41	0.34	NA	0	0	0.29	0.64	0.13	0.20	2.70	NA	0.22	0.29	2.97	NA	0.12	0.97
Redox Potential	mV	90.5	56.0	-93.7	-200.1	-70.6	-177.8	-148.2	-203	-153.3	-135.3	-93.1	-146.9	NA	-165	-166	-183	-152	27	-166.2	-153.5	NA	-78	-126	-111	-177	-86.8	-46.5
Temperature	°C	16.4	18.48	19.24	20.21	18.93	19.04	19.24	18.92	20.44	18.68	16.88	17.97	NA	16.2	15.9	16.33	17.1	16.38	16.65	16.56	NA	16.79	18.1	17.48	19.1	17.5	19.17

NOTES:
< - Constituent not detected above laboratory reporting limit.
(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
F2 - MS/MSD RPD (relative perect difference) exceeds control limits.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
NA - Not Analyzed.
Samples collected in September 1999 represent baseline conditions.
S.U. - Standard Units.
U - Constituent not detected above laboratory reporting limit shown.

Table A-8
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 3 West
RACER Trust
Moraine, Ohio

IRZ-3 West		GM-32																												
Constituents	**Units**	**9/22/99**	**2/28/00**	**5/30/00**	**9/25/00**	**3/19/01**	**11/12/01**	**12/11/01**	**6/12/02**	**9/20/02**	**5/23/03**	**10/1/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/23/08**	**11/16/09**	**9/27/10**	**9/29/11**	**9/6/12**	**9/26/13**	**10/8/14**	**12/8/15**	**8/17/16**	**8/16/17**	**7/24/18**	**7/11/19**	**7/31/20**
Inorganics & TOC																														
Nitrate	mg/L	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	2.3	2.0	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.15	0.52	0.051	0.30	0.17	0.16 B	0.087 B	0.043 B	0.053 B	0.10 J	0.13 J	0.13 J	0.076	0.088	0.077 J	0.051	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Dissolved)	mg/L	0.05	0.06	0.048	0.31	<0.050 U	0.020 B	0.024 B	0.042 B	0.028 B	0.077 J	0.11 J	0.13 J	0.067	0.078	0.072 J	0.056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Total)	mg/L	8.14	42.4	18.4	81.0	13	16.5	10.5	7.5	8.4 B	21.3	31.4 J	33.9	22.0	24.7	20	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Dissolved)	mg/L	3.53	0.59	17.1	81.6	3.17	5.2	6.5	8.1	6.8 B	18.7	30.5 J	34.5	19.8	24.5	19.5	13.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron (Ferrous)	mg/L	1.8	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	30	<5.0 U	<10 U	<10 U	<20 U	5.0	4.0 J	1.0 J	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	mg/L	<1.0 U	<10 U	<1.0 U	<1.0 U	1.6	<1.0 U	<1.0	0.50 J	1.3	0.86 B	7.3	16	4.1	1.0	14	7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	mg/L	68	1200	2020	2720	1120	320 B	250	240	160	150	170	240 J	300	260	290 J	95	170	260	71	62	40	22	6.0	4.2	9.2	3.8	3.8	3.0
Chloride	mg/L	317	638	740	740	798	700 B	630	470	510	390	510 J	530	550	560	560 J	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Permanent Gases																														
Carbon Dioxide	mg/L	39.79	8.94	24.32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	1.67	0.85	<0.15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	14.93	15.23	2.40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	2.7	7.1	15	17	29	29	38	24	32	24	19	25	30 J	26	26	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																														
Ethane	ng/L	1,649	9,965	1,029	189	7,900	42,000	72,000	84,000	94,000	74,000	46,000	57,000	85,000 J	76,000	73,000	58,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1500
Ethene	ng/L	86,509	163,855	472,312	510,593	150,000	130,000	90,000	93,000	49,000	9,900	3,400	2,000	1,900 J	2,400	1,200	940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1000 U
Field Parameters																														
pH	S.U.	7.54	8.59	7.64	7.73	8.36	8.42	8.13	8.55	8.13	6.41	6.81	6.86	6.30	6.84	7.00	7.13	7.02	7.68	7.20	7.15	8.05	7.26	7.04	6.81	6.68	7.15	7.07	7.04
Specific Conductivity	umhos/cm	2,750	9,030	9,195	9,225	7,483	6,874	6,200	5,432	4,289	3,908	3,192	4,210	4,810	4,510	4,240	3,220	3,540	5,328	3,280	1,998	1,388	1,520	1,380	1,200	1,320	1,140	870	878
Dissolved Oxygen	mg/L	0.09	0.23	10.82	2.55	0.36	0.07	0.03	1.14	0.22	1.93	0.31	0.00	0.00	0.21	0.45	1.79	0.89	2.4	1.97	0.94	0.42	0.72	0.00	7.08	6.36	0.00	0.69	0.60
Redox Potential	mV	-226.4	-279.1	-213.6	-353.8	-152.5	-222.8	-279	-220.5	-227.1	-204.6	-154.4	-160	-191	-193	-161	-200	-108	-236.9	-244	-73	-17	-99	-165.0	-148.0	-105	-167.0	-94.0	-125.9
Temperature	°C	19.27	19.72	23.48	19.27	19.3	18.84	18.62	20.83	19.81	19.31	18.47	17.20	17.00	17.70	16.70	18.71	16.30	16.79	18.77	21.5	18.36	18.48	15.57	17.96	15.83	16.21	17.80	17.00

NOTES:
< - Constituent not detected above laboratory reporting limit.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
NA - Not Analyzed.
Samples collected in September 1999 represent baseline conditions.
S.U. - Standard Units.
U - Constituent not detected above laboratory reporting limit shown.

Table A-8
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 3 West
RACER Trust
Moraine, Ohio

IRZ-3 West		GM-8																				
Constituents	**Units**	**3/6/98**	**9/20/99**	**9/20/02**	**12/9/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/23/08**	**11/16/09**	**9/27/10**	**9/30/11**	**9/6/12**	**9/26/13**	**10/7/14**	**12/5/15**	**8/22/16**	**8/16/17**	**7/24/18**	**7/11/19**	**7/31/20**
Inorganics & TOC																						
Nitrate	mg/L	<4.4 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA
Nitrite	mg/L	<0.033 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	1.69	1.95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100 UH	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.20	0.13	0.085 B	0.21	0.13	0.17	0.16	0.12 J	0.027	0.0617	0.14	0.035	0.025	0.037	0.061	0.086	0.091	0.082	0.068	0.048	NA
Manganese (Dissolved)	mg/L	0.23	0.13	0.084 B	0.21	0.14	0.15	0.15	0.11 J	0.026	0.0643	0.0604	0.031	0.025	0.036	0.061	0.09	0.082	0.08	0.071	0.044	NA
Iron (Total)	mg/L	1.0	0.27	0.55 B	1.9	1.8	3.2	3.4	3.3	0.69	2.2	4.27	1.2	0.830	1.700	2.700	4.1	3.8	3.4	2.9	2.1	NA
Iron (Dissolved)	mg/L	1.2	0.26	0.52 B	1.9	1.8	2.8	3.1	3.0	0.64	2.13	2.05	0.98	0.780	1.200	2.500	4.2	3.2	3.3	3	1.6	NA
Iron (Ferrous)	mg/L	<0.2 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	59	54	59	<5.0 U	13 J	27	24	49	32	23	22	24	27	22	28	32	32	29	38	30	NA
Sulfide	mg/L	<1.0 U	<1.0 U	<1.0 U	<1.0 U	2	<1.0 U	1.8	0.86 J	0.54 J	1.2 J	1.4	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	NA
Total Organic Carbon	mg/L	7.0	8.0	16	20	19 J	19	16	16 J	12	15	19	17	8.2	9.8	5.8	4.7	5.4	7.0	6.2	NA	6.8
Chloride	mg/L	248	216	180	180 J	190	260	320	360 J	250	230	230	270	190 B	150	150	170 B	130	120	130	NA	NA
Permanent Gases																						
Carbon Dioxide	mg/L	15.8	9.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	1.1	0.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	19.7	25.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	1.5	2.5	8.5	14	9.0	8.1 J	7.2	9.1	4.4	7.8	6.7	4.7	2.5	1.8	2.3	2.1	1.9	2.4	1.6	2.7	1.9
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																						
Ethane	ng/L	370	1,134	13,000	12,000	18,000	17,000 J	7,200	10,000	22,000	11,000	19,000	26,000	10,000	12,000	12,000	23,000	41,000	33,000	30,000	64,000	54,000
Ethene	ng/L	12,233	39,617	3,700	440	56	< 76 U J	1,200	32	140	< 220 U	33	120	140	930	34	250	15 J	23 J	15 J	39 J	< 1000 U
Field Parameters																						
pH	S.U.	7.7	7.98	8.18	7.2	7.76	6.45	7.31	7.21	8.1	7.86	7.89	7.81	10.32	7.92	7.44	7.42	7.33	6.92	7.68	7.65	7.74
Specific Conductivity	umhos/cm	1,539	1,584	1,734	1,870	1,900	2,080	2,120	2,300	2,060	1,920	2,083	2,560	1,690	1,488	1,419	1,420	1,330	1,420	1,340	1,030	1,103
Dissolved Oxygen	mg/L	0.16	0.28	0.37	0.04	0.00	0.00	0.53	0.70	0.00	0.00	3.00	0.60	7.38	0.63	0.55	0.00	3.97	3.61	0.21	0.28	0.42
Redox Potential	mV	-145	-49.8	-150.6	-137	-186	-162	-160	-125	-262	-24	-167.7	-115	-209	-42.8	-168.3	-200.0	-174.0	-193.0	-214.0	-156.0	-157.4
Temperature	°C	17.53	19.09	19.2	18.17	16.60	16.30	18.10	17.00	17.60	16.00	16.51	21.10	20.34	15.70	15.60	15.89	18.74	16.29	16.03	16.30	16.30

NOTES:
< - Constituent not detected above laboratory reporting limit.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
NA - Not Analyzed.
Samples collected in September 1999 represent baseline conditions.
S.U. - Standard Units.
U - Constituent not detected above laboratory reporting limit shown.

Table A-8
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 3 West
RACER Trust
Moraine, Ohio

IRZ-3 West		GM-6													
Constituents	**Units**	**3/6/98**	**9/20/99**	**9/20/02**	**12/9/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/24/08**	**9/27/10**	**10/7/14**	**12/8/15**	**7/11/19**	**7/31/20**
Inorganics & TOC															
Nitrate	mg/L	<4.4	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	<0.033	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.300	<0.30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	1.07	1.11	0.27B	0.57	0.43	0.50	0.54	0.4 J	0.14	NA	NA	NA	0.18	NA
Manganese (Dissolved)	mg/L	1	0.958	0.24B	0.53	0.47	0.49	0.54	0.39 J	0.13	NA	NA	NA	0.19	NA
Iron (Total)	mg/L	1.32	0.27	0.40B	5.7	3.2	5.4	5.7	6.7	2.9	NA	NA	NA	5.4	NA
Iron (Dissolved)	mg/L	<0.1	<0.10	0.30B	1.9	3.1	4.8	5.6	6.3	2.6	NA	NA	NA	5.0	NA
Iron (Ferrous)	mg/L	<0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	93	83	43	27	26 J	52	55	66	26	NA	NA	NA	45	NA
Sulfide	mg/L	<1	<1	<1.0	<1.0	3.4	< 1.0 U	< 1 U	< 1 U	6.5	NA	NA	NA	< 1.0 U	NA
Total Organic Carbon	mg/L	3	4	17	12	16 J	6	7	8 J	14 J	NA	NA	NA	NA	3.2
Chloride	mg/L	227	247	170	190J	230	290	340	400 J	250	NA	NA	NA	NA	NA
Permanent Gases															
Carbon Dioxide	mg/L	47.4	48.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	1.57	2.23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	20.5	21.77	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.008337	0.006916	7.8	7.8	7.2	4.4 J	3.5	5.3	5.2	NA	NA	NA	3.3	0.49
Carbon Monoxide	mg/L	<0.4	<0.40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan															
Ethane	ng/L	47	67	10,000	2,400	5,000	870 J	520	660	13,000	NA	NA	NA	8,500	17,000
Ethene	ng/L	91	97	4,900	750	2,000	3,600 J	1,700	1,800	680	NA	NA	NA	73 J	< 1000 U
Field Parameters															
pH	S.U.	7	7.05	7.46	7.76	7.16	6.06	6.8	6.84	7.17	7.27	7.36	7.08	7.00	7.16
Specific Conductivity	umhos/cm	1,422	1,493	1,658	2,080	1,830	1,880	1,920	2,130	2,160	1,900	1,318	1,410	1,250	992
Dissolved Oxygen	mg/L	0.88	0.48	0.34	0.03	0	0	0.24	0.51	1.43	3.30	0.19	0.00	0.19	0.35
Redox Potential	mV	57.6	26.5	-27.7	-223	-111	-107	-111	-86	-159	-136.4	-126.5	-148.0	-68.9	-129.2
Temperature	°C	18.49	21.07	19.07	17.71	16.8	16.8	17.3	17.5	16.51	16.10	16.10	15.6	17.0	16.36

NOTES:
< - Constituent not detected above laboratory reporting limit.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
NA - Not Analyzed.
Samples collected in September 1999 represent baseline conditions.
S.U. - Standard Units.
U - Constituent not detected above laboratory reporting limit shown.

Table A-9
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 3 East
RACER Trust
Moraine, Ohio

IRZ-3 East		GM-21																	
Constituents	**Units**	**9/22/99**	**2/23/00**	**5/26/00**	**9/22/00**	**3/19/01**	**11/13/01**	**12/11/01**	**6/12/02**	**9/25/02**	**5/22/03**	**9/24/03**	**9/14/04**	**10/17/05**	**9/20/06**	**9/26/07**	**10/3/08**	**11/16/09**	**9/28/10**
Inorganics & TOC																			
Nitrate	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.30 U	<0.30 U	<0.30 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.321	0.233	0.215	0.336	0.298	0.30 B	0.30 B	0.31B	0.29B	0.32J	0.37J	0.35 J	0.17	0.19	0.27 J	0.78	0.882	0.758
Manganese (Dissolved)	mg/L	0.273	0.225	0.212	0.312	0.291	0.32 B	0.29 B	0.29B	0.25B	0.26J	0.38J	0.33 J	0.16	0.19	0.27 J	0.77	0.893	0.768
Iron (Total)	mg/L	2.58	0.30	0.83	0.63	0.11	<0.10 U	0.16	0.65	0.56	12.6	0.27	2.3	26.9	10.7	9.2	17.9	19.6	26.1
Iron (Dissolved)	mg/L	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	0.11	<0.10	<0.10	1.4	0.47	< 0.1 U	25.5	10.7	8.9	16.7	20.2	25.6
Iron (Ferrous)	mg/L	0.4	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	103	102	80	102	118	120	100	76	76	55J	82	79 J	< 5 U	35	17	38	19	13
Sulfide	mg/L	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	1.9	0.50J	0.40J	0.54B	1.5	2.9	< 1.0 U	< 1 U	< 1 U	1.5	4.0 J	<1.0 U
Total Organic Carbon	mg/L	1.0	3.0	2.0	<1.0 U	<1.0 U	2.0 B	1.0	0.9J	2	2	2	2 J	92	7	14 J	18	45	91
Chloride	mg/L	136	145	126	129	165	140	150	170	180	160	190J	190	190	240	260 J	240	220	230
Permanent Gases																			
Carbon Dioxide	mg/L	37.04	37.40	18.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	1.41	0.99	1.89	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	23.40	21.67	23.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.037	0.018	0.014	0.042	0.048	0.049	0.035	0.022	0.03	0.031	1.5	0.077	17	4.9	30	28	28	23
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																			
Ethane	ng/L	72	67	84	72	82	76	120	150	120	130	30	140	9,800	27,000	290,000 J	77,000	71,000	50,000
Ethene	ng/L	169	38	70	69	46	46	100	120	64	570	520	250	330,000	63,000	80,000	13,000	6,700	3,600
Field Parameters																			
pH	S.U.	6.99	7.22	7.06	7.21	7.85	7.50	7.45	7.22	7.09	6.76	7.05	7.19	6.73	6.90	6.64	6.05	6.40	6.46
Specific Conductivity	umhos/cm	1,188	1,299	1,048	1,096	1,067	1,190	1,360	1,045	1,245	968	1,181	1,180	1,640	1,580	1,870	1,405	2,088	2,424
Dissolved Oxygen	mg/L	0.66	0.60	0.40	0.99	0.57	0.04	0.04	0.63	0.41	0.83	0.75	0	0	0.25	0.46	0.12	0.24	3.60
Redox Potential	mV	-26.9	113.3	167.1	153.9	218.5	168.8	-25	373.8	238.1	77.1	-26.7	-7	-140	-137	-126	68	-92.1	-95.1
Temperature	^{o}C	20.43	18.43	17.92	19.03	17.59	16.73	15.82	18.67	18.67	17.54	18.39	17.1	16.4	16.94	17.2	16.5	16.32	16.65

NOTES:
< - Constituent not detected above laboratory reporting limit.
B - Blank Contamination.
^{o}C - Degrees Celsius.
Carbon source introductions began in December 1999.
J - Value is estimated.
mg/L - Milligrams per Liter.
mV - Millivolts.
NA - Not Analyzed.
ng/L - Nanograms per Liter.
S.U. - Standard Units.
umhos/cm - Micromohs per Centimeter.
Samples collected in September 1999 represent baseline conditions.
U - Constituent not detected above laboratory reporting limit shown.

Table A-9
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 3 East
RACER Trust
Moraine, Ohio

IRZ-3 East		GM-21 Continued										GM-2
Constituents	**Units**	**9/29/11**	**9/7/12**	**9/26/13**	**10/9/14**	**12/11/15**	**8/22/16**	**8/17/17**	**7/25/18**	**7/12/19**	**7/31/20**	**7/31/20**
Inorganics & TOC												
Nitrate	mg/L	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA
Nitrite	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	NA	NA	NA	NA	<0.100 UH	NA	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.93	1.100 B	1.1	1.1 B	0.880 B	0.62	0.48	0.57	0.52	NA	NA
Manganese (Dissolved)	mg/L	0.91	1.100 B	1.0	1.1 B	0.890 B	0.61	0.51	0.54	0.55	NA	NA
Iron (Total)	mg/L	32	31	32	34 B	29 B	29	21	27	28	NA	NA
Iron (Dissolved)	mg/L	31	33	32	34 B	29 B	28	22	27	29	NA	NA
Iron (Ferrous)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	23	56	21	<50 U	16	41	47	32	23	NA	NA
Sulfide	mg/L	<1.0 U	14	1.0	1.6	0.47 J	<1.0 U	<1.0 U	0.80 J	< 1.0 U	NA	NA
Total Organic Carbon	mg/L	100	86	120	120	110	94	81	95	NA	62	0.92 J
Chloride	mg/L	300	240 B	290	310 B	300 B	240	230	250	NA	NA	NA
Permanent Gases												
Carbon Dioxide	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	15	12	NA	15	17	16	13	15	16	14	<0.005
Carbon Monoxide	mg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan												
Ethane	ng/L	21,000	7,500	NA	6,800	6,300	6,100	6,400	7,500	4,300	4,500 J	<1,000
Ethene	ng/L	3,100	5,800	NA	5,400	8,100	7,000	4,600	5,700	4,400	2,600 J	<1,000
Field Parameters												
pH	S.U.	6.50	6.36	6.38	7.12	6.95	6.40	6.30	6.40	6.44	6.43	6.94
Specific Conductivity	umhos/cm	2,974	2,511	1,373	2,853	1,280	2,560	2,340	2,350	1,740	1,597	904
Dissolved Oxygen	mg/L	0.30	0.12	0.47	0.28	0	0.64	5.08	NA	0.81	3.45	0.35
Redox Potential	mV	-13.7	-12	22.6	-29.3	-151	-93	-76	-116	-44	-25.3	22.9
Temperature	°C	23.00	22.90	23.70	16.40	16.37	17.32	17.42	17.2	17.2	17.92	18.09

NOTES:
< - Constituent not detected above laboratory reporting limit.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
J - Value is estimated.
mg/L - Milligrams per Liter.
mV - Millivolts.
NA - Not Analyzed.
ng/L - Nanograms per Liter.
S.U. - Standard Units.
umhos/cm - Micromohs per Centimeter.
Samples collected in September 1999 represent baseline conditions.
U - Constituent not detected above laboratory reporting limit shown.

Table A-10
Bioattenuation Parameter Results for Groundwater Samples Collected in In-Situ Reactive Zone 4 East
RACER Trust
Moraine, Ohio

IRZ-4 East		GM-19S																												
Constituents	**Units**	**9/20/99**	**2/23/00**	**5/24/00**	**9/22/00**	**3/19/01**	**11/20/01**	**12/11/01**	**6/12/02**	**9/26/02**	**5/21/03**	**9/25/03**	**9/13/04**	**10/18/05**	**9/21/06**	**9/17/07**	**9/23/08**	**11/17/09**	**4/7/10**	**9/27/10**	**9/29/11**	**9/6/12**	**9/26/13**	**10/7/14**	**12/5/15**	**8/22/16**	**8/16/17**	**7/24/18**	**7/12/19**	**7/31/20**
Inorganics & TOC																														
Nitrate	mg/L	11	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA	NA	NA	NA	NA
Nitrite	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.30 U	<0.30 U	<0.30 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.100 UH	NA	NA	NA	NA	NA
Manganese (Total)	mg/L	0.726	1.09	0.247	0.238	0.191	0.20	0.21 B	0.25 B	0.39 B	0.30 J	0.23 J	0.25	0.24	0.99	0.28 J	0.16	0.0911	NA	0.169	0.17	0.130	0.110	0.15	0.14	0.22	0.26	0.29	0.29	NA
Manganese (Dissolved)	mg/L	0.185	0.205	0.200	0.187	0.155	0.19	0.18 B	0.18 B	0.19 B	0.20 J	0.21 J	0.16	0.2	0.94	0.15 J	0.16	0.0900	NA	0.170	0.14	0.130	0.110	0.15	0.18	0.21	0.22	0.28	0.30	NA
Iron (Total)	mg/L	16.9	39.4	1.19	0.40	0.9	0.091	0.18	0.26	0.44	0.17	0.96	3.0	0.38	1.6	12.7	7.4	15.2	NA	18.9	11	6.7	5.5	7.4	6.7	4.8	5.5	6.0	4.2	NA
Iron (Dissolved)	mg/L	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	1.4	9.4	7.3	15.1	NA	18.3	9	6.4	5.4	5.7	6.4	4.7	4.2	5.4	4.4	NA
Iron (Ferrous)	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	127	131	131	118	113	100	90	110	110	150 J	150	110 J	83	95	63	68	25	NA	21	58	84	76	43	47	39	50	53	49	NA
Sulfide	mg/L	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.96J	<1.0 U	<1.0 U	<1.0 U	1.3	1.6	<1.0 U	<1.0 U	<1.0 U	<1.0 U	1.0 J	NA	0.80 J	<1.0 U	0.75 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 1.0 U	NA
Total Organic Carbon	mg/L	2.0	7.0	5.0	<1.0 U	<1.0 U	2.0 B	1.0	1.0	3.0	2.0	2.0	1.0	3.0	22	6.0 J	3.0	10	NA	14	4.6	2.6	3.2	2.2	2.5	1.3	1.3	1.7	NA	1.5
Chloride	mg/L	247	197	168	165	158	130 B	150	140	210	270	300J	310	320	350	400 J	390	460	NA	390	340	290 B	230	170	160 B	150	150 B	140	NA	NA
Permanent Gases																														
Carbon Dioxide	mg/L	41.85	57.12	50.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	4.43	1.01	1.24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	20.87	17.07	17.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.0099	0.0027	0.0033	0.0037	0.039	0.0050	0.0088	0.002	0.46	0.0021	0.0022	0.0014	< 0.0065 U	0.025	7.5	0.79	25	NA	19	1.3	0.0090	0.22	0.54	1.2	0.46	0.72	0.21	0.60	0.13
Carbon Monoxide	mg/L	<0.40 U	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan																														
Ethane	ng/L	71	104	139	184	210	300	350	410	730	170	80	48	<250 U	730	7,800	550	11,000	NA	9,300	870	53	85	91	160	37 J	14 J	57 J	77 J	< 1000 U
Ethene	ng/L	55	45	43	36	61	34	27	130	770	78	45	51	<220 U	550	22,000	30,000	<120 U	NA	72	1,800	760	590	600	330	180	180	390	140	130 J
Field Parameters																														
pH	S.U.	7.05	7.05	7.00	7.19	7.14	7.28	7.31	7.09	7.02	6.71	6.93	7.13	5.97	6.84	7.03	7.1	6.93	6.78	7.47	6.33	7.11	8.43	6.85	6.95	6.92	6.64	7.11	6.91	7.00
Specific Conductivity	umhos/cm	1,500	1,784	1,548	1,235	1,097	1,190	1,350	1,052	1,474	1,706	1,726	1,970	1,940	2,150	2,010	2,290	1,951	2,370	1,986	2,150	1,377	1,539	1,280	1,280	1,180	1,180	1,130	1,127	893
Dissolved Oxygen	mg/L	0.92	0.30	1.94	1.36	0.96	1.75	0.06	0.9	0.47	2.01	1.87	0.0	0.0	0.3	0.43	1.87	0.33	0.80	0.67	2.08	0.54	0.54	0.32	0	2.16	3.72	0	1.32	0.61
Redox Potential	mV	31.3	149.6	200.1	187.7	320.8	195.6	13	446.3	259.6	178.3	135	160	122	-82	-145	-153	-137.9	-157	-112.5	-150	-26	-64.1	-79	-151	-133	-138	-143	-40.7	-107.3
Temperature	°C	20.85	18.69	20.80	20.09	20.14	19.24	19.1	20.39	20.36	20.22	19.57	18.6	17.6	17.9	17.5	16.9	16.68	17.73	16.43	17.82	23.90	19.80	15.30	16.37	17.37	17.41	16.87	17.30	17.53

NOTES:
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
S.U. - Standard Units.
umhos/cm - Micromohs per Centimeter.
mV - Millivolts.
°C - Degrees Celsius.
J - Value is estimated.
B - Blank Contamination.
NA - Not Analyzed.
< - Constituent not detected above laboratory reporting limit.
U - Constituent not detected above laboratory reporting limit shown.
Samples collected in September 1999 represent baseline conditions.
Carbon source introductions began in December 1999.

Appendix B

Annual Groundwater Sampling Event Field Parameters Data Sheet

Appendix B
Annual Groundwater Sampling Event Field Parameters Data Sheet
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

Well ID	*Sample ID*	pH (s.u.)	Temp (°C)	ORP (mV)	Conductivity (mS/cm)	DO (mg/L)	Purge Rate (L/min)	Time Start Purge	Time End Purge	Volume Purged (L)	Sample Date	Time Sampled	Sampler
Upper Aquifer Wells													
EAST	EAST/07302020/	7.12	18.17	234	0.814	4.11	0.300	11:00	11:40	17.0	7/30/2020	11:45	D. Gossett
GM-2 Annual	GM-2/07312020/	6.94	18.09	23	0.904	0.35	0.270	12:07	12:44	11.2	7/31/2020	12:45	H. Smith
GM-6 Annual	GM-6/07312020/	7.16	16.36	-129	0.992	0.35	0.500	10:40	11:16	13.4	7/31/2020	11:20	H. Smith
GM-8 Annual	GM-8/07312020/	7.74	16.30	-157	1.103	0.42	0.380	9:05	9:45	13.8	7/31/2020	9:50	H. Smith
GM-16 Semi-Annual	GM-16/02112020/	6.62	15.44	107	0.912	0.07	0.200	10:55	11:25	7.5	2/11/2020	11:30	D. Gossett
GM-16 Semi-Annual	GM-16/07282020/	7.35	15.03	185	0.811	0.54	0.400	9:10	9:37	10.0	7/28/2020	9:40	H. Smith
GM-19S Semi-Annual	GM-19S/02132020/	6.77	16.32	-38	0.942	0.06	0.500	9:15	9:45	12.0	2/13/2020	9:50	D. Gossett
GM-19S Semi-Annual	GM-19S/07312020/	7.00	17.53	-107	0.893	0.61	0.500	15:05	15:40	15.2	7/31/2020	15:45	H. Smith
GM-21 Annual	GM-21/07312020/	6.43	17.92	-25	1.597	3.45	0.400	8:55	9:30	12.0	7/31/2020	9:35	D. Gossett
GM-23 Annual	GM-23/07312020/	7.07	22.25	-63	1.125	1.22	0.200	14:05	14:30	5.0	7/31/2020	14:35	D. Gossett
GM-27 Annual	GM-27/07312020/	7.18	20.16	93	0.822	10.59	0.200	13:15	13:45	7.0	7/31/2020	13:50	D. Gossett
GM-28R Annual	GM-28R/07312020/	7.21	19.17	-47	0.444	0.97	0.300	10:40	11:10	9.5	7/31/2020	11:15	D. Gossett
GM-29 Annual	GM-29/07312020/	6.89	21.84	-83	0.989	1.44	0.100	12:00	12:35	6.0	7/31/2020	12:40	D. Gossett
GM-32 Annual	GM-32/07312020/	7.04	17.00	-126	0.878	0.60	0.280	13:42	14:19	12.7	7/31/2020	14:20	H. Smith
GM-35 Annual	GM-35/07302020/	8.73	17.21	-88	3.300	3.61	0.400	14:25	15:00	14.0	7/30/2020	15:05	D. Gossett
GM-36 Annual	GM-36/07302020/	7.09	23.99	220	0.459	4.54	0.200	13:30	14:05	11.0	7/30/2020	14:10	D. Gossett
GM-37 Annual	GM-37/07302020/	6.85	16.20	201	0.859	2.91	0.500	14:55	15:31	16.6	7/30/2020	15:35	H. Smith
GM-38 Annual	GM-38/07302020/	6.91	17.61	201	0.886	2.56	0.250	13:27	14:23	15.8	7/30/2020	14:25	H. Smith
GM-47 Semi-Annual	GM-47/02122020/	6.72	16.18	102	0.936	0.18	0.500	12:25	12:55	15.0	2/12/2020	13:00	D. Gossett
GM-47 Semi-Annual	GM-47/07272020/	7.05	17.81	164	1.06	0.56	0.400	14:51	15:26	14.5	7/27/2020	15:30	H. Smith
GM-48 Semi-Annual	GM-48/02122020/	6.89	13.57	111	0.823	0.15	0.300	10:15	10:45	13.5	2/12/2020	10:50	D. Gossett
GM-48 Semi-Annual	GM-48/07272020/	7.14	18.29	192	0.889	3.81	0.400	12:30	13:25	20.5	7/27/2020	13:30	D. Gossett
GM-49 Annual	GM-49/07272020/	7.19	20.71	183	0.929	0.14	0.300	14:00	14:40	12.0	7/27/2020	14:45	D. Gossett
GM-50 Semi-Annual	GM-50/02122020/	6.72	16.18	102	0.936	0.18	0.500	13:20	13:50	15.0	2/12/2020	13:55	D. Gossett
GM-50 Semi-Annual	GM-50/07272020/	7.07	17.26	157	0.942	0.35	0.350	15:55	16:30	12.0	7/27/2020	16:35	H. Smith
GM-51 Semi-Annual	GM-51/02122020/	6.87	14.91	126	0.854	3.16	0.500	11:00	11:30	16.5	2/12/2020	11:35	D. Gossett
GM-51 Semi-Annual	GM-51/07272020/	7.22	18.65	213	0.771	4.10	0.300	11:25	12:15	17.0	7/27/2020	12:20	D. Gossett
GM-52 Annual	GM-52/07272020/	7.23	19.20	236	0.845	1.91	0.200	15:10	15:35	5.5	7/27/2020	15:40	D. Gossett
GM-63 Semi-Annual	GM-63/02112020/	6.75	15.92	111	0.952	4.09	0.450	15:15	15:45	16.0	2/11/2020	15:50	D. Gossett
GM-63 Semi-Annual	GM-63/07282020/	7.03	18.20	152	1.162	2.49	0.400	12:50	13:27	12.7	7/28/2020	13:30	H. Smith
GM-64 Semi-Annual	GM-64/02112020/	6.68	15.50	94	0.958	0.09	0.500	16:10	16:40	--	2/11/2020	16:45	D. Gossett
GM-64 Semi-Annual	GM-64/07282020/	7.01	18.44	-57	1.226	0.52	0.300	11:33	12:11	10.9	7/28/2020	12:15	H. Smith
GM-80 Annual	GM-80/07302020/	7.28	16.36	201	0.684	4.37	0.200	9:50	10:20	12.0	7/30/2020	10:25	D. Gossett
HR-1 Annual	HR-1/07292020/	7.00	17.61	175	1.157	0.57	0.470	14:27	15:07	15.8	7/29/2020	15:10	H. Smith
HR-4 Annual	HR-4/07292020/	7.06	18.24	203	0.931	4.54	0.500	9:05	9:25	9.5	7/29/2020	9:30	D. Gossett
HR-16 Annual	HR-16/07292020/	7.05	17.40	146	0.901	0.43	0.400	16:03	16:30	10.0	7/29/2020	16:35	H. Smith
HR-17 Semi-Annual	HR-17/02132020/	7.20	16.24	123	1.144	0.21	0.500	15:50	16:15	13.0	2/13/2020	16:20	D. Gossett
HR-17 Semi-Annual	HR-17/07292020/	7.01	17.54	174	1.092	0.92	0.200	9:20	9:52	9.7	7/29/2020	9:55	H. Smith
RMW-91 Semi-Annual	RMW-91/02142020/	7.08	15.38	103	1.051	0.09	0.500	13:15	13:45	15.0	2/14/2020	13:50	D. Gossett
RMW-91 Semi-Annual	RMW-91/07282020/	7.13	17.64	228	0.946	0.39	0.400	8:45	9:15	9.0	7/28/2020	9:20	D. Gossett
RMW-92 Semi-Annual	RMW-92/02142020/	7.06	16.06	110	0.890	0.70	0.300	14:05	14:35	15.5	2/14/2020	14:40	D. Gossett
RMW-92 Semi-Annual	RMW-92/07282020/	7.11	17.42	240	0.842	0.09	0.400	10:00	10:30	12.0	7/28/2020	10:35	D. Gossett
RMW-93 Semi-Annual	RMW-93/02132020/	6.76	15.82	108	1.009	2.01	0.500	11:10	11:40	15.0	2/13/2020	11:45	D. Gossett
RMW-93 Semi-Annual	RMW-93/07282020/	7.16	18.03	205	0.965	3.88	0.200	11:40	12:15	7.0	7/28/2020	12:20	D. Gossett
RMW-94 Semi-Annual	RMW-94/02132020/	6.79	15.73	88	0.974	1.29	0.500	10:20	10:50	9.5	2/13/2020	10:55	D. Gossett
RMW-94 Semi-Annual	RMW-94/07282020/	7.12	18.67	212	0.980	4.58	0.100	11:00	11:25	2.5	7/28/2020	11:30	D. Gossett
RMW-95 Annual	RMW-95/07302020/	7.18	16.52	131	0.719	0.61	0.300	8:43	9:24	10.5	7/30/2020	9:30	H. Smith
RMW-96 Annual	RMW-96/07302020/	7.06	14.44	150	0.706	1.89	0.480	10:10	10:48	14.0	7/30/2020	10:50	H. Smith
RMW-97 Annual	RMW-97/07302020/	7.25	14.28	170	0.645	0.60	0.460	11:18	11:54	14.6	7/30/2020	12:00	H. Smith
RMW-98 Semi-Annual	RMW-98/02142020/	7.14	15.82	98	0.970	0.03	0.500	11:25	11:55	17.0	2/14/2020	12:00	D. Gossett
RMW-98 Semi-Annual	RMW-98/07282020/	7.06	17.60	193	1.181	1.94	0.300	15:45	16:22	10.2	7/28/2020	16:25	H. Smith
RMW-99 Semi-Annual	RMW-99/02142020/	7.06	15.87	111	0.942	1.30	0.500	12:10	12:40	14.0	2/14/2020	12:45	D. Gossett
RMW-99 Semi-Annual	RMW-99/07282020/	7.01	17.84	187	1.162	2.40	0.300	14:35	15:12	12.8	7/28/2020	15:15	H. Smith
RMW-100 Semi-Annual	RMW-100/02112020/	7.35	14.75	18	0.620	0.05	0.500	13:00	13:30	21.0	2/11/2020	13:35	D. Gossett
RMW-100 Semi-Annual	RMW-100/07272020/	7.44	17.11	-140	1.216	0.62	0.205	11:31	12:10	11.2	7/27/2020	12:15	H. Smith
RMW-101 Semi-Annual	RMW-101/02112020/	7.45	11.87	100	0.371	7.73	0.500	14:15	14:45	21.0	2/11/2020	14:50	D. Gossett
RMW-101 Semi-Annual	RMW-101/07272020/	7.86	17.35	71	0.473	2.34	0.470	12:39	13:19	15.1	7/27/2020	13:20	H. Smith
RMW-102 Semi-Annual	RMW-102/02112020/	6.81	15.86	85	0.885	0.31	0.500	11:50	12:20	--	2/11/2020	12:25	D. Gossett
RMW-102 Semi-Annual	RMW-102/07282020/	7.67	16.60	192	0.567	5.31	0.270	10:10	10:47	10.3	7/28/2020	10:50	H. Smith

Appendix B
Annual Groundwater Sampling Event Field Parameters Data Sheet
RACER Trust Moraine Facilities
Moraine, Ohio

Well ID	*Sample ID*	pH (s.u.)	Temp (°C)	ORP (mV)	Conductivity (mS/cm)	DO (mg/L)	Purge Rate (L/min)	Time Start Purge	Time End Purge	Volume Purged (L)	Sample Date	Time Sampled	Sampler
W-2-N Annual	W-2-N/07292020/	7.04	18.75	-33	1.013	4.49	0.300	10:10	10:45	10.5	7/29/2020	10:50	D. Gossett
W-3-N Annual	W-3-N/07292020/	7.03	16.08	-57	1.031	1.28	0.500	11:40	12:15	15.0	7/29/2020	12:20	D. Gossett
W-4-N Annual	W-4-N/07292020/	6.95	16.06	185	1.079	4.02	0.400	12:55	13:25	12.0	7/29/2020	13:30	D. Gossett
W-2-S Semi-Annual	W-2-S/02122020/	6.73	14.78	110	0.973	0.23	0.500	14:50	15:20	16.0	2/12/2020	15:25	D. Gossett
W-2-S Semi-Annual	W-2-S/07292020/	7.09	16.97	184	1.040	0.54	0.300	10:40	11:11	9.4	7/29/2020	11:15	H. Smith
W-3-S Semi-Annual	W-3-S/02132020/	7.08	16.49	123	1.032	0.12	0.500	12:55	13:20	12.5	2/13/2020	13:25	D. Gossett
W-3-S Semi-Annual	W-3-S/07292020/	7.03	16.26	176	0.999	0.30	0.470	11:50	12:12	9.3	7/29/2020	12:15	H. Smith
W-4-S Semi-Annual	W-4-S/02132020/	7.11	15.99	126	0.933	0.30	0.400	14:55	15:25	9.0	2/13/2020	15:30	D. Gossett
W-4-S Semi-Annual	W-4-S/07292020/	6.99	17.14	180	1.029	1.56	0.400	12:53	13:21	9.9	7/29/2020	13:25	H. Smith
WSU-23 Semi-Annual	WSU-23/02132020/	6.93	15.43	150	0.350	0.35	0.300	8:15	8:45	9.0	2/13/2020	8:50	D. Gossett
WSU-23 Semi-Annual	WSU-23/07282020/	7.11	19.75	163	0.966	4.27	0.100	13:35	14:25	10.5	7/28/2020	14:30	D. Gossett
WEST	WEST/07302020/	7.14	18.31	117	0.816	4.22	0.300	12:40	13:05	8.5	7/30/2020	13:10	D. Gossett
Lower Aquifer Wells													
DN-13 Annual	DN-13/07282020/	7.09	18.29	190	0.894	5.13	0.100	--	--	0.5	7/28/2020	15:05	D. Gossett
GM-9 Annual	GM-9/07302020/	7.28	16.48	200	0.689	4.49	0.200	8:35	9:05	10.0	7/30/2020	9:10	D. Gossett
GM-15 Annual	GM-15/07292020/	7.01	16.34	14	0.891	4.66	0.300	14:55	15:20	7.0	7/29/2020	15:25	D. Gossett
GM-20D Annual	GM-20D/07292020/	7.02	15.93	218	0.810	4.70	0.500	14:10	14:25	7.0	7/29/2020	14:30	D. Gossett

Notes:
ºC - Degrees Celsius.
DO - Dissolved Oxygen.
L/min - Liters per Minute.
L - Liters.
mg/L - Milligrams per Liter.
mS/cm - Millisiemens per Centimeter.
mV - Millivolts.
NM - Not Measured.
ORP - Oxidation Reduction Potential.
s.u. - Standard Units.
Temp - Temperature.

Appendix C

Groundwater VOC Analytical Data for 2020 Including QA/QC Samples

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

			Downgradient Reactive Zone Performance Monitorng Wells											
	Units	U.S. EPA MCL[1]	GM-2 7/31/2020 Upper Aquifer	GM-6 7/31/2020 Upper Aquifer	GM-8 7/31/2020 Upper Aquifer	GM-19S 2/13/2020 Upper Aquifer	GM-19S 7/31/2020 Upper Aquifer	GM-21 7/31/2020 Upper Aquifer	GM-23 7/31/2020 Upper Aquifer	GM-27 7/31/2020 Upper Aquifer	GM-28R 7/31/2020 Upper Aquifer	GM-28R 7/31/2020 Upper Aquifer	GM-29 7/31/2020 Upper Aquifer	GM-32 7/31/2020 Upper Aquifer
Site-Specific Volatile Organic Compounds														
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.0 U	7.8	< 1.0 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	< 1.0 U	< 1.0 U	1.2	1.1	7.0	9.9	< 1.0 U	< 1.0 U	< 1.0 U	9.5	0.43 J
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	32	28	11	**140**	7.7	0.91 J	0.99 J	**380**	< 1.0 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
Tetrachloroethene	ug/L	5	**30**	< 1.0 U*	< 1.0 U*	2.6	1.5	< 1.0 U*	3.3	0.85 J*	**0.92 J**	**0.85 J**	**11**	< 1.0 U*
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.3 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	1.3	11	< 1.0 U	< 1.0 U	< 1.0 U	25	< 1.0 U
Trichloroethene	ug/L	5	**3.9**	< 1.0 U	< 1.0 U	3.2	2.7	1.7	**6.8**	**22**	< 1.0 U	< 1.0 U	**290**	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U*	< 1.0 U*	< 1.0 U*	**2.1**	**2.9**	**8.0**	**190**	< 1.0 U*	< 1.0 U	0.50 J	**42**	< 1.0 U*
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.7 U	< 2.0 U
Total Site-Specific VOCs	ug/L		34	0.0	1.3	42	36	29	361	31	1.8	2.3	765	0.43

NOTES:

MCL - Maximum Contaminant Level - U.S. EPA drinking water standard.

[1] - An MCL is not listed for 1,1-dichloroethane.

The QA/QC results for 2020 data are shown in Appendix C.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

B - Compound was found in the blank and sample.

F1 - MS and/or MSD recovery exceeds control limits.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

* - LCS or LCSD is outside acceptable limits

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	U.S. EPA MCL[1]	Closed North Settling Lagoon Monitoring Wells					Closed South Settling Lagoon Monitoring Wells							
			HR-1 7/29/2020 Upper Aquifer	HR-4 7/29/2020 Upper Aquifer	W-2-N 7/29/2020 Upper Aquifer	W-3-N 7/29/2020 Upper Aquifer	W-4-N 7/29/2020 Upper Aquifer	HR-17 2/13/2020 Upper Aquifer	HR-17 7/29/2020 Upper Aquifer	W-2-S 2/12/2020 Upper Aquifer	W-2-S 7/29/2020 Upper Aquifer	W-3-S 2/13/2020 Upper Aquifer	W-3-S 7/29/2020 Upper Aquifer	W-4-S 2/13/2020 Upper Aquifer	W-4-S 7/29/2020 Upper Aquifer
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 10 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	1.7	3.6	1.3	0.85 J	1.9	1.6	1.7 J	0.71 J
1,1-Dichloroethane	ug/L	--	< 10 U	1.3	< 1.0 U	< 1.0 U	7.3	< 1.0 U	< 2.0 U	0.79 J	0.60 J	0.28 J	0.48 J	0.72 J	< 2.0 U
1,1-Dichloroethene	ug/L	7	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Benzene	ug/L	5	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
cis-1,2-Dichloroethene	ug/L	70	20	0.42 J	1.8	13	8.2	1.3	< 2.0 U	1.2	1.7	1.5	1.9	9.4	1.0 J
Ethylbenzene	ug/L	700	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Tetrachloroethene	ug/L	5	**120**	< 1.0 U	< 1.0 U	< 1.0 U	0.81 J	**170**	**160**	1.0	**6.3**	**140**	**110**	**43**	**37**
Toluene	ug/L	1,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
trans-1,2-Dichloroethene	ug/L	100	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	0.55 J	< 1.0 U	< 2.0 U	0.25 J	< 1.0 U	< 1.0 U	< 1.0 U	0.79 J	< 2.0 U
Trichloroethene	ug/L	5	**25**	0.36 J	0.79 J	< 1.0 U	**6.9**	1.9	< 2.0 U	**5.9**	3.6	1.1	2.0	**48**	**9.1**
Vinyl chloride	ug/L	2	< 10 U	< 1.0 U	< 1.0 U	0.88 J	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Xylene (total)	ug/L	10,000	< 20 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 4.0 U
Total Site-Specific VOCs	ug/L		165	4.0	2.6	14	24	175	164	10	13	145	116	104	48

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

			Downgradient Off-Site Monitoring Wells				Phase 1 DGR™ System Performance Monitoring Wells								
	Units	U.S. EPA MCL[1]	GM-80 7/30/2020 Upper Aquifer	RMW-95 7/30/2020 Upper Aquifer	RMW-96 7/30/2020 Upper Aquifer	RMW-97 7/30/2020 Upper Aquifer	HR-16 7/29/2020 Upper Aquifer	RMW-91 2/14/2020 Upper Aquifer	RMW-91 7/28/2020 Upper Aquifer	RMW-92 2/14/2020 Upper Aquifer	RMW-92 7/28/2020 Upper Aquifer	RMW-93 2/13/2020 Upper Aquifer	RMW-93 7/28/2020 Upper Aquifer	RMW-94 2/13/2020 Upper Aquifer	RMW-94 7/28/2020 Upper Aquifer
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	0.48 J	< 1.0 U	< 1.0 U	0.52 J	2.8	1.8 J	1.4 J	1.3 J	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.67 J	1.8	< 5.0 U	0.56 J	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
cis-1,2-Dichloroethene	ug/L	70	0.92 J	< 1.0 U	< 1.0 U	< 1.0 U	0.45 J	12	8.9	0.84 J	0.79 J	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Tetrachloroethene	ug/L	5	**12**	8.4	2.7	3.3	0.42 J	**100**	**83**	**54**	**50**	**50**	**22**	**38**	**27**
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Trichloroethene	ug/L	5	2.0	1.2	< 1.0 U	< 1.0 U	2.8	**59**	**53**	1.0 J	0.96 J	3.7	0.86 J	0.39 J	< 1.7 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.7 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 10 U	< 4.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 4.0 U	< 3.3 U
Total Site-Specific VOCs	ug/L		15	10	2.7	3.3	4.9	177	147	58	53	54	23	38	27

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
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Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

			Phase 1 DGR™ System Performance Monitoring Wells												
	Units	U.S. EPA MCL[1]	GM-16 2/11/2020 Upper Aquifer	GM-16 7/28/2020 Upper Aquifer	GM-47 2/12/2020 Upper Aquifer	GM-47 7/27/2020 Upper Aquifer	GM-48 2/12/2020 Upper Aquifer	GM-48 7/27/2020 Upper Aquifer	GM-49 7/27/2020 Upper Aquifer	GM-50 2/12/2020 Upper Aquifer	GM-50 7/27/2020 Upper Aquifer	GM-51 2/12/2020 Upper Aquifer	GM-51 7/27/2020 Upper Aquifer	GM-52 7/27/2020 Upper Aquifer	GM-63 2/11/2020 Upper Aquifer
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	0.85 J	0.57 J	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0 J
1,1-Dichloroethane	ug/L	--	2.3	0.45 J	0.70 J	2.7	1.4	1.3	0.75 J	0.67 J	2.2	2.0	1.1	< 1.0 U	< 2.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
cis-1,2-Dichloroethene	ug/L	70	6.2	1.7	9.3	38	4.3	4.5	2.4	8.3	7.0	2.9	3.8	< 1.0 U	5.3
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
Tetrachloroethene	ug/L	5	**10.0**	**12.0**	3.3	**33**	**13**	**18**	**14**	3.6	1.9	**26**	**25**	**15**	**51**
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
Trichloroethene	ug/L	5	3.1	3.0	1.1	**10**	13	**11**	**28**	1.1	0.75 J	1.2	1.4	1.0	1.5 J
Vinyl chloride	ug/L	2	0.52 J	< 1.0 U	0.33 J	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
Total Site-Specific VOCs	ug/L		22	17	15	84	33	35	46	14	13	32	31	16	59

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	U.S. EPA MCL[1]	Phase 1 DGR™ System Performance Monitoring Wells											
			GM-63 7/28/2020 Upper Aquifer	GM-64 2/11/2020 Upper Aquifer	GM-64 7/28/2020 Upper Aquifer	RMW-98 2/14/2020 Upper Aquifer	RMW-98 7/28/2020 Upper Aquifer	RMW-99 2/14/2020 Upper Aquifer	RMW-99 7/28/2020 Upper Aquifer	RMW-100 2/11/2020 Upper Aquifer	RMW-100 7/27/2020 Upper Aquifer	RMW-101 2/11/2020 Upper Aquifer	RMW-101 7/27/2020 Upper Aquifer	RMW-102 2/11/2020 Upper Aquifer
Site-Specific Volatile Organic Compounds														
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 2.0 U	< 1.0 U	2.0	0.55 J	1.2 J	0.51 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	2.1	0.58 J	0.45 J	< 2.0 U	< 2.0 U	< 2.0 U	0.26 J	0.42 J	< 1.0 U	< 1.0 U	1.6
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	2.0	57	29	1.2 J	< 2.0 U	< 2.0 U	1.8 J	0.67 J	0.67 J	< 1.0 U	< 1.0 U	10
Ethylbenzene	ug/L	700	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**37**	**24**	**14**	**62**	**42**	**52**	**46**	< 1.0 U	< 1.0 U	0.35 J	0.36 J	< 1.0 U
Toluene	ug/L	1,000	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	0.80 J	0.46 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.58 J
Trichloroethene	ug/L	5	2.2	**24**	4.3	3.4	< 2.0 U	1.7 J	0.73 J	< 1.0 U	< 1.0 U	0.14 J	< 1.0 U	0.63 J
Vinyl chloride	ug/L	2	< 1.0 U	2.7	1.5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.30 J
Xylene (total)	ug/L	10,000	< 2.0 U	< 4.0 U	< 2.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		41	111	50	69	43	55	49	0.93	1.1	0.49	0.36	13

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

			Phase 1 DGR™ Performance Monitoring Wells			Upgradient of IRZ-3 West Monitoring Wells						DN-13 Performance Monitoring Wells			
			RMW-102	WSU-23	WSU-23	GM-35	GM-36	GM-37	GM-38	EAST	WEST	DN-13	GM-9	GM-15	GM-20D
	Units	U.S. EPA MCL[1]	7/28/2020 Upper Aquifer	2/13/2020 Upper Aquifer	7/28/2020 Upper Aquifer	7/30/2020 Upper Aquifer	7/30/2020 Upper Aquifer	7/30/2020 Upper Aquifer	7/30/2020 Upper Aquifer	7/30/2020 Upper Aquifer	7/30/2020 Upper Aquifer	7/28/2020 Lower Aquifer	7/30/2020 Lower Aquifer	7/29/2020 Lower Aquifer	7/29/2020 Lower Aquifer
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	1.4	1.3 J	< 20 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	0.56 J	0.90 J	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	0.62 J	< 4.0 U	19 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	0.96 J	< 1.0 U	2.6	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 4.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 4.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	0.65 J	< 4.0 U	**92 F1**	< 1.0 U	< 1.0 U	1.5	< 1.0 U	6.0	4.2	< 1.0 U	12	< 1.0 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 4.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**12.0**	**5.3**	**73**	**13 J**	**11**	**7.7**	**20**	**15**	**13**	1.2	< 1.0 U	< 1.0 U	3.1
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 4.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 4.0 U	9.0 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.64 J	< 1.0 U
Trichloroethene	ug/L	5	0.37 J	4.7	3.5 J	**150**	0.82 J	0.89 J	3.4	1.6	4.4	**5.6**	**13**	4.5	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	< 4.0 U	< 20 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.98 J	< 1.0 U	< 1.0 U	0.56 J	< 1.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 8.0 U	< 40 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		12	13	78	283	12	8.6	26	17	26	13	14	20	3.1

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	U.S. EPA MCL[1]	DUPLICATE (GM-28R) 7/31/2020 QAQC	DUPLICATE (HR-04) 7/29/2020 QAQC	DUPLICATE (RMW-100) 2/11/2020 QAQC	DUPLICATE (RMW-91) 7/28/2020 QAQC	DUPLICATE (RMW-99) 2/14/2020 QAQC	EQUIPMENT BLANK 2/11/2020 QAQC	EQUIPMENT BLANK 2/12/2020 QAQC	EQUIPMENT BLANK 2/13/2020 QAQC	EQUIPMENT BLANK 2/14/2020 QAQC	EQUIPMENT BLANK 7/27/2020 QAQC	EQUIPMENT BLANK 7/27/2020 QAQC	EQUIPMENT BLANK 7/28/2020 QAQC	EQUIPMENT BLANK 7/28/2020 QAQC
Site-Specific Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	1.9	< 1.0 U	1.9 J	1.0 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	1.3	0.30 J	1.5 J	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 3.3 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 3.3 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	0.99 J	0.52 J	0.77 J	9.5	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 3.3 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	0.85 J	< 1.0 U	< 1.0 U	**91**	**55**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 3.3 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 3.3 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	< 1.0 U	0.36 J	< 1.0 U	**55**	1.9 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	0.50 J	< 1.0 U	< 1.0 U	< 3.3 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 6.7 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		2.3	4.1	1.1	159	58	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits

Appendix C
Groundwater VOC Analytical Data for 2020 Including QA/QC Samples
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	U.S. EPA MCL[1]	EQUIPMENT BLANK 7/29/2020 QAQC	EQUIPMENT BLANK 7/29/2020 QAQC	EQUIPMENT BLANK 7/30/2020 QAQC	EQUIPMENT BLANK 7/30/2020 QAQC	EQUIPMENT BLANK 7/31/2020 QAQC	EQUIPMENT BLANK 7/31/2020 QAQC	TRIP BLANK 2/12/2020 QAQC	TRIP BLANK 2/14/2020 QAQC	TRIP BLANK 7/28/2020 QAQC	TRIP BLANK 7/29/2020 QAQC	TRIP BLANK 7/30/2020 QAQC	TRIP BLANK 7/31/2020 QAQC
Site-Specific Volatile Organic Compounds														
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	0.62 J	0.38 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		Not Detected	Not Detected	Not Detected	0.62	0.38	Not Detected	Not Detected	0.31	Not Detected	Not Detected	Not Detected	Not Detected

NOTES:
MCL - Maximum Contaminant Level - U.S. EPA drinking water standarc
[1] - An MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2020 data are shown in Appendix C.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
B - Compound was found in the blank and sample.
F1 - MS and/or MSD recovery exceeds control limits.
J - Value is estimated.
U - Constituent not detected above laboratory reporting limit shown.
* - LCS or LCSD is outside acceptable limits

Appendix D

Groundwater VOC Analytical Results from 1999 to 2020

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
Upgradient of the Site													
GM-24	9/23/1999	2.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	12/11/2015	8.1	0.67 J	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.4	< 1.0 U	< 2.0 U
	8/16/2016	10	0.84 J	< 1.0 U	1.5	1.2	< 1.0 U	< 1.0 U	0.94 J	< 1.0 U	4.5	< 1.0 U	< 2.0 U
HR-11	9/14/1999	< 1.0 U	14	< 1.0 U	< 1.0 U	3.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/18/2000	< 1.0 U	33	< 1.0 U	< 1.0 U	19	< 1.0 U	< 1.0 U	< 1.0 U	2.6	< 1.0 U	< 1.0 U	< 1.0 U
	11/6/2001	0.30 J	33	< 1.0 U	< 1.0 U	18	< 1.0 U	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 1.0 U	< 1.0 U
	9/26/2002	< 1.0 U	18	< 1.0 U	< 1.0 U	6.1	< 1.0 U	< 1.0 U	< 1.0 U	0.72	< 1.0 U	< 1.0 U	< 1.0 U
	9/18/2003	< 1.0 U	10	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/15/2004	< 1.0 U	7.3	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	2.2	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/17/2005	< 1.0 U	6.5	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	**6.0**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2006	< 1.0 U	6.7	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/19/2007	< 1.0 U	7.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2008	< 1.0 U	5.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	4.4	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	< 1.0 U	< 2.0 U
On-Site													
GM-6	9/20/1999	25	33	1.2	< 1.0 U	53	< 10 U	**81**	< 1.0 U	2.0	**78**	1.6	< 10 U
	9/26/2000	12	13	< 1.0 U	< 1.0 U	41	< 1.0 U	**52**	< 1.0 U	2.2	**57**	**3.7**	< 1.0 U
	11/9/2001	3.9	14	< 2.0 U	< 2.0 U	8.2	< 2.0 U	**14**	< 2.0 U	1.8	**48**	1.9J	< 2.0 U
	9/20/2002	1.4 J	60	< 2.0 U	2.2	43	< 2.0 U	**14**	< 2.0 U	8.6	**33**	**12**	< 2.0 U
	10/2/2003	0.19 J	20	< 1.0 U	1.0	13	0.22 J	**11**	< 1.0 U	2.5	**23**	**3.3**	< 1.0 U
	9/14/2004	< 1.0 U	18	< 1.0 U	1.7	10	< 1.0 U	2.6	< 1.0 U	1.9	**5.7**	**3.0**	< 1.0 U
	10/19/2005	< 1.0 U	21	< 1.0 U	0.49 J	20	< 1.0 U	0.34 J	< 1.0 U	2.1	1.4	**11**	< 2.0 U
	9/19/2006	< 1.0 U	16	< 1.0 U	< 1.0 U	18	< 1.0 U	< 1.0 U	< 1.0 U	1.6	0.35 J	**7.3**	< 2.0 U
	9/18/2007	< 1.0 U	26	< 1.0 U	0.42 J	16	< 1.0 U	< 1.0 U	< 1.0 U	2.6	0.34 J	**6.7**	< 2.0 U
	9/24/2008	< 1.0 U	< 8.0 U	< 1.0 U	1.2	6.7	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	**2.1**	< 2.0 U
	11/11/2009	< 1.0 U	6.9	< 1.0 U	1.3	3.4	< 1.0 U	< 1.0 U	< 1.0 U	0.68 J	3.8	1.2	< 2.0 U
	9/27/2010	< 1.0 U	6.2	< 1.0 U	1.1	4.9	< 1.0 U	0.38 J	< 1.0 U	0.89 J	**6.6**	1.6	< 2.0 U
	9/29/2011	< 1.0 U	4.5	< 1.0 U	1.0	3.7	< 1.0 U	< 1.0 U	< 1.0 U	0.84 J	< 1.0 U	1.5	< 2.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	0.66 J	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.26 J	0.79 J	< 2.0 U
	10/7/2014	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	12/8/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/22/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/16/2017	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	7/24/2018	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	0.40 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.65 J	< 2.0 U
	7/11/2019	< 1.0 U	0.23 J	< 1.0 U	< 1.0 U	0.38 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.25 J	< 2.0 U
	7/31/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*	< 2.0 U
GM-8	9/20/1999	1.9	30.2	< 1.0 U	3.4	26.2	20.7	14.8	< 1.0 U	12	**30.4**	**8.4**	2.3
	9/26/2000	< 1.0 U	37	< 1.0 U	1.1	1.5	13	< 1.0 U	< 1.0 U	5.4	**6.6**	**2.4**	1.9
	11/9/2001	0.40 J	40	< 1.0 U	0.78 J	2.0	0.40 J	< 1.0 U	< 1.0 U	3.6	4.4	1.9	0.39J
	9/20/2002	< 2.0 U	63	< 2.0 U	**5.5**	5.5	7.5	< 2.0 U	1.8 J	9	< 2.0 U	**5.8**	1.5J
	10/1/2003	< 2.0 U	48	< 2.0 U	**5.4**	< 1.0 U	11	< 2.0 U	< 2.0 U	4.4	< 2.0 U	< 2.0 U	< 2.0 U
	9/14/2004	< 1.0 U	15	< 1.0 U	4.2	< 0.50 U	19	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.48 J	1.1
	10/19/2005	< 1.0 U	16	< 1.0 U	3.5	0.24 J	29	< 1.0 U	0.39 J	0.99 J	< 1.0 U	0.73 J	< 2.0 U
	9/19/2006	< 5.0 U	18	< 5.0 U	2.1 J	2.1 J	< 5.0 U	< 5.0 U	< 5.0 U	1.0 J	< 5.0 U	**3.2 J**	< 1.0 U
	9/18/2007	< 2.0 U	9.1	< 2.0 U	2.4	< 2.0 U	1.7 J	< 2.0 U	< 2.0 U	0.9 J	< 2.0 U	< 2.0 U	0.9 J
	9/23/2008	< 1.0 U	1.7	< 1.0 U	**6.8**	< 1.0 U	8.6	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	0.48 J	3.9
	11/16/2009	< 1.0 U	2.9	< 1.0 U	3.9	< 1.0 U	5.5	0.34 J	0.13 J	0.22 J	< 1.0 U	< 1.0 U	1.3 J
	9/27/2010	< 1.0 U	3.0	< 1.0 U	4.7	< 1.0 U	0.33 J	< 1.0 U	0.18 J	0.29 J	< 1.0 U	0.44 J	< 2.0 U
	9/29/2011	< 1.0 U	1.9	< 1.0 U	3.5	< 1.0 U	5.4	< 1.0 U	< 1.0 U	0.20 J	< 1.0 U	0.24 J	0.99 J
	9/6/2012	< 1.0 U	0.66 J	< 1.0 U	3.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	0.88 J	< 1.0 U	1.9	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	< 1.0 U	< 2.0 U
	10/7/2014	< 1.0 U	0.59 J	< 1.0 U	1.2	0.23 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.58 J	< 2.0 U
	12/8/2015	< 1.0 U	0.43 J	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.53 J	< 2.0 U
	8/22/2016	< 1.0 U	0.37 J	< 1.0 U	0.79 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/16/2017	< 1.0 U	0.44 J	< 1.0 U	0.86 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J
	7/24/2018	< 1.0 U	0.47 J	< 1.0 U	1.3	0.30 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	< 2.0 U
	7/11/2019	< 1.0 U	0.40 J	< 1.0 U	1.6	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.25 J	< 2.0 U
	7/31/2020	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U*	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-19S	9/20/1999	16	7.7	1.0	< 1.0 U	35	< 10	**46**	< 1.0 U	2.3	**71**	< 1.0 U	< 10
	9/22/2000	15	4.4	< 1.0 U	< 1.0 U	38	< 1.0 U	**68**	< 1.0 U	2.6	**104**	< 1.0 U	< 1.0 U
	11/12/2001	7.6	2.9J	< 3.3 U	< 3.3 U	26	< 3.3 U	**64**	< 3.3 U	2.0	**97**	< 3.3 U	< 3.3 U
	9/26/2002	6.3	6.3	< 4.0 U	< 4.0 U	39	< 4.0 U	**52**	< 4.0 U	2.7	**110**	**5.2**	< 4.0 U
	9/25/2003	13	8.3	1.6 J	< 5.0 U	**89**	< 5.0 U	**62**	< 5.0 U	2.9	**140**	< 5.0 U	< 5.0 U
	9/13/2004	14	8.1	1.9 J	< 4.0 U	61	< 4.0 U	**71**	< 4.0 U	2.4	**120**	< 4.0 U	< 4.0 U
	10/18/2005	13	9.0	1.2 J	< 1.0 U	29	< 1.0 U	**95**	< 1.0 U	1.0 J	**140**	1.8	< 3.3 U
	9/21/2006	9.7 J	7.0 J	< 22 U	< 22 U	**660**	< 22 U	**9.1 J**	< 22 U	10 J	**11 J**	< 22 U	< 4.0 U
	9/17/2007	0.59 J	10	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	1.5	< 1.0 U	0.29 J	0.46 J	< 1.0 U	< 2.0 U
	9/23/2008	< 1.0 U	13	< 1.0 U	< 1.0 U	0.68 J	< 1.0 U	0.94 J	< 1.0 U	0.52 J	3.0	**9.3**	< 2.0 U
	11/17/2009	< 1.0 U	12	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	0.22 J	< 1.0 U	< 2.0 U
	4/7/2010	< 1.0 U	9.6	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/27/2010	< 1.0 U	9.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/29/2011	< 1.0 U	10	< 1.0 U	< 1.0 U	5.3	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**12**	< 2.0 U
	9/6/2012	< 1.0 U	8.4	< 1.0 U	< 1.0 U	7.3	< 1.0 U	< 1.0 U	< 1.0 U	0.84 J	0.30 J	**10**	< 2.0 U
	9/26/2013	< 1.0 U	8.3	< 1.0 U	< 1.0 U	26	< 1.0 U	< 1.0 U	< 1.0 U	1.1	0.46 J	**17**	< 2.0 U
	10/7/2014	< 1.0 U	7.6	< 1.0 U	< 1.0 U	37	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	0.81 J	**15**	< 2.9 U
	12/8/2015	< 1.0 U	3.1	< 1.0 U	< 1.0 U	37	< 1.0 U	< 1.0 U	< 1.0 U	0.66 J	1.3	**6.4**	< 2.0 U
	8/22/2016	< 1.0 U	3.4	< 1.0 U	< 1.0 U	44	< 1.0 U	< 1.0 U	< 1.0 U	0.64 J	1.8	**4.6**	< 2.0 U
	8/17/2017	< 1.0 U	2.3	< 1.0 U	< 1.0 U	39	< 1.0 U	< 1.0 U	< 1.0 U	0.52 J	1.9	**4.0**	< 2.0 U
	7/24/2018	< 1.0 U	2.3	< 1.0 U	< 1.0 U	31	< 1.0 U	0.37 J	< 1.0 U	0.66 J	2.4	**8.8**	< 2.0 U
	7/12/2019	< 1.0 U	1.9	< 1.0 U	< 1.0 U	32	< 1.0 U	1.0	< 1.0 U	0.52 J	2.3	**3.6**	< 2.0 U
	2/13/2020	< 1.0 U	1.2	< 1.0 U	< 1.0 U	32	< 1.0 U	2.6	< 1.0 U	0.41 J	3.2	**2.1**	< 2.0 U
	7/31/2020	< 1.0 U	1.1	< 1.0 U	< 1.0 U	28	< 1.0 U	1.5	< 1.0 U	< 1.0 U	2.7	**2.9**	< 2.0 U
GM-21	9/22/1999	53	9.0	3.9	< 1.0 U	66	< 1.0 U	< 1.0 U	< 1.0 U	7.8	**29**	< 1.0 U	< 1.0 U
	9/22/2000	16	5.6	1.6	< 1.0 U	39	< 1.0 U	< 1.0 U	< 1.0 U	13	**189**	< 1.0 U	< 1.0 U
	11/13/2001	6.9	3.8 J	< 5.0 U	< 5.0 U	39	< 5.0 U	< 5.0 U	< 5.0 U	15	**160**	< 5.0 U	< 5.0 U
	9/25/2002	31	5.0 J	2.6 J	< 6.7 U	43	< 6.7 U	< 6.7 U	< 6.7 U	5.1	**230**	< 6.7 U	< 6.7 U
	9/24/2003	31	6.9 J	2.0 J	< 8.0 U	**100**	< 8.0 U	< 8.0 U	< 8.0 U	2.9 J	**200**	< 8.0 U	< 8.0 U
	9/14/2004	26	4.2 J	3.1 J	< 9.1 U	56	< 9.1 U	< 9.1 U	< 9.1 U	7.9	**180**	< 9.1 U	< 9.1 U
	10/17/2005	4.3	3.4	< 1.0 U	< 1.0 U	20	< 1.0 U	< 1.0 U	< 1.0 U	22	1.8	**13**	< 2.0 U
	9/20/2006	12	8.6	0.19 J	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	4.3	**5.9**	**9.3**	< 2.0 U
	9/26/2007	8.5	18	<1.4 U	<1.4 U	26	<1.4 U	<1.4 U	<1.4 U	2.5	2.8	**12**	< 2.9 U
	10/3/2008	8.7	15	0.33 J	< 1.0 U	38	< 1.0 U	0.56 J	< 1.0 U	4.7	**18**	**19**	< 2.9 U
	11/16/2009	2.4	22	< 1.0 U	< 1.0 U	7.8	< 1.0 U	< 1.0 U	< 1.0 U	4.4	2.4	**6.6**	< 2.0 U
	9/28/2010	0.75 J	20	< 1.0 U	< 1.0 U	3.9	< 1.0 U	< 1.0 U	< 1.0 U	3	3.2	**3.6**	< 2.0 U
	9/29/2011	1.0	16	< 1.0 U	< 1.0 U	9.9	< 1.0 U	< 1.0 U	< 1.0 U	1.9	**19**	**6.2**	< 2.0 U
	9/7/2012	< 2.0 U	18	< 2.0 U	< 2.0 U	8.5	< 2.0 U	< 2.0 U	< 2.0 U	1.7 J	**14**	**5.1**	< 4.0 U
	9/26/2013	< 1.0 U	9.5	< 1.0 U	< 1.0 U	5.1	< 1.0 U	< 1.0 U	< 1.0 U	1.1	**12**	**3.8**	< 2.0 U
	10/9/2014	< 1.0 U	16	< 1.0 U	< 1.0 U	12	< 1.0 U	< 1.0 U	< 1.0 U	1.6	**18**	**5.8**	< 2.0 U
	12/11/2015	< 2.0 U	12	< 2.0 U	< 2.0 U	22	< 2.0 U	< 2.0 U	< 2.0 U	1.6 J	**16**	**8.9**	< 4.0 U
	8/22/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/17/2017	< 1.0 U	11	< 1.0 U	< 1.0 U	19	< 1.0 U	< 1.0 U	< 1.0 U	1.5	2.4	**9.7**	< 2.0 U
	7/25/2018	< 1.0 U	9.3	< 1.0 U	< 1.0 U	23	< 1.0 U	< 1.0 U	< 1.0 U	1.6	3.9	**15**	< 2.0 U
	7/12/2019	< 1.0 U	6.3	< 1.0 U	< 1.0 U	10	< 1.0 U	< 1.0 U	< 1.0 U	1.0	2.1	**6.6**	< 2.0 U
	7/31/2020	< 1.0 U	7.0	< 1.0 U	< 1.0 U	11	< 1.0 U	< 1.0 U*	< 1.0 U	1.3	1.7	**8.0**	< 2.0 U
GM-22	9/1/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 1.0 U	4.0	< 1.0 U	< 1.0 U
	9/21/2000	< 1.0 U	2.4	< 1.0 U	< 1.0 U	1.9	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/13/2001	4.4	6.8	0.58J	< 1.0 U	8.5	< 1.0 U	4.9	< 1.0 U	0.17 J	**7.5**	0.60 J	< 1.0 U
	9/25/2002	0.93 J	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	2.3	< 2.0 U	< 1.0 U	**7.6**	< 2.0 U	< 2.0 U
	9/24/2003	1.2	1.0	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	2.9	< 1.0 U	< 0.50 U	**7.6**	< 1.0 U	< 1.0 U
	9/14/2004	1.7	2.1	< 1.0 U	< 1.0 U	0.9	< 1.0 U	2.9	< 1.0 U	< 0.50 U	**10**	< 1.0 U	< 1.0 U
	10/17/2005	0.96 J	1.0	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	3.6	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/20/2006	0.47 J	1.1	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	3.2	< 1.0 U	< 1.0 U	3.0	< 1.0 U	< 2.0 U
	9/26/2007	0.66 J	0.72 J	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	3.3	< 1.0 U	< 1.0 U	3.3	< 1.0 U	< 2.0 U
	10/3/2008	0.73 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.7**	< 1.0 U	< 1.0 U	**5.7**	< 1.0 U	< 2.0 U
	9/26/2013	0.65 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.3	< 1.0 U	< 1.0 U	3.9	< 1.0 U	< 2.0 U
GM-23	9/2/1999	7.2	33	**17**	1.9	**7530**	< 1.0 U	**6250**	< 1.0 U	55	**1460**	**2500**	7.0
	9/20/2000	2.0	16	5.1	< 1.0 U	**5620**	< 1.0 U	**3470**	< 1.0 U	33	**609**	**801**	< 1.0 U
	11/12/2001	< 4.0 U20	< 4.0 U20	< 4.0 U20	< 4.0 U20	**8400**	< 4.0 U20	**15000**	< 4.0 U20	< 210	**2200**	**1200**	< 4.0 U20
	9/26/2002	< 4.0 U0	< 4.0 U0	< 4.0 U0	< 4.0 U0	**7700**	< 4.0 U0	**10000**	< 4.0 U0	< 200	**1700**	**540**	< 4.0 U0
	9/23/2003	< 50 U0 U	< 50 U0 U	< 50 U0 U	< 50 U0 U	**5800**	< 50 U0 U	**12000**	< 50 U0 U	< 250 U	**1600**	**690**	< 50 U0 U
	9/14/2004	< 50 U0 U	< 50 U0 U	< 50 U0 U	< 50 U0 U	**4600**	< 50 U0 U	**6700**	< 50 U0 U	< 250 U	**1100**	**870**	< 50 U0 U
	10/17/2005	< 560 U	< 560 U	< 560 U	< 560 U	**19000**	< 560 U	**2300**	< 560 U	< 560 U	**490 J**	**2800**	< 100 U
	9/28/2006	< 330 U	< 330 U	< 330 U	< 330 U	**11000**	< 330 U	**370**	< 330 U	**270 J**	**95 J**	**4100**	< 670 U
	9/27/2007	< 200 U	< 200 U	< 200 U	< 200 U	**4700**	< 200 U	**280**	< 200 U	**130 J**	**82 J**	**2600**	< 4.0 U0 U
	10/23/2008	< 62 U	< 62 U	< 62 U	< 62 U	**2000**	< 62 U	**71**	< 62 U	58 J	< 62 U	**2100**	< 1.0 U
	11/17/2009	< 20 U	5.0 J	< 20 U	< 20 U	**1100**	< 20 U	**19 J**	< 20 U	31	**8.3 J**	**1100**	< 4.0 U
	9/29/2010	< 22 U	< 22 U	< 22 U	< 22 U	**490**	< 22 U	**50**	< 22 U	16 J	**17 J**	**500**	< 4.0 U
	9/30/2011	< 20 U	< 20 U	< 20 U	< 20 U	**580**	< 20 U	**57**	< 20 U	21	**33**	**840**	< 4.0 U
	9/7/2012	< 25 U	< 25 U	< 25 U	< 25 U	**580**	< 25 U	**33**	< 25 U	21 J	**15 J**	**390**	< 50 U
	9/27/2013	< 1.0 U	2.6	1.7	0.28 J	**470**	< 1.0 U	**37**	< 1.0 U	15	**28**	**210**	< 2.0 U
	10/10/2014	< 1.0 U	8.4 J	< 1.0 U	< 1.0 U	**210**	< 1.0 U	3.6 J	< 1.0 U	20	4.1 J	**220**	< 20 U
	12/8/2015	< 1.0 U	15	0.47 J	0.69 J	**100**	< 1.0 U	0.58 J	< 1.0 U	13	5.0	**120**	< 2.0 U
	8/22/2016	< 2.0 U	8.6	1.1 J	< 2.0 U	**530**	< 2.0 U	**8.0**	< 2.0 U	18	**7.6**	**280**	< 4.0 U
	8/17/2017	< 2.0 U	5.4	1.4 J	< 2.0 U	**580**	< 2.0 U	**30**	< 2.0 U	22	**8.6**	**360**	< 4.0 U
	7/26/2018	< 1.0 U	8	0.81 J	0.47 J	**260**	< 1.0 U	**8.4**	0.16 J	16	5.0	**210**	< 2.0 U
	7/12/2019	< 40 U	< 40 U	< 40 U	< 40 U	**550**	< 40 U	**22 J**	< 40 U	16 J	**15 J**	**250**	< 80 U
	7/31/2020	< 2.5 U	9.9	< 2.5 U	< 2.5 U	**140**	< 2.5 U	3.3	< 2.5 U	11	**6.8**	**190**	< 5.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-25	9/22/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/21/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
GM-27	9/1/1999	< 1.0 U	2.4	< 1.0 U	< 1.0 U	21	< 1.0 U	1.7	< 1.0 U	< 1.0 U	**121**	< 1.0 U	< 1.0 U
	9/20/2000	< 1.0 U	2.2	< 1.0 U	< 1.0 U	14	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**112**	< 1.0 U	< 1.0 U
	11/13/2001	< 3.3 U	1.8 J	< 3.3 U	< 3.3 U	13	< 3.3 U	**6.8**	< 3.3 U	< 1.0 U	**110**	< 3.3 U	< 3.3 U
	9/26/2002	< 3.3 U	1.7 J	< 3.3 U	< 3.3 U	14	< 3.3 U	< 3.3 U	< 3.3 U	< 1.0 U	**100**	< 3.3 U	< 3.3 U
	9/23/2003	< 5.0 U	1.9 J	< 5.0 U	< 5.0 U	12	< 5.0 U	2.1 J	< 5.0 U	< 2.5 U	**100**	< 5.0 U	< 5.0 U
	9/15/2004	< 3.3 U	2.0 J	< 3.3 U	< 3.3 U	13	< 3.3 U	1.8 J	< 3.3 U	< 1.0 U	**81**	< 3.3 U	< 3.3 U
	10/17/2005	< 2.5 U	2.2 J	< 2.5 U	< 2.5 U	14	< 2.5 U	0.94 J	< 2.5 U	0.49 J	**76**	0.82 J	< 5.0 U
	9/28/2006	< 2.5 U	2.6	< 2.5 U	< 2.5 U	14	< 2.5 U	1.0 J	< 2.5 U	1.0 J	**80**	< 2.5 U	< 5.0 U
	9/27/2007	< 2.0 U	2.3	< 2.0 U	< 2.0 U	12	< 2.0 U	0.9 J	< 2.0 U	0.41 J	**70**	< 2.0 U	< 4.0 U
	10/23/2008	< 1.0 U	2	< 1.0 U	< 1.0 U	11	< 1.0 U	0.9 J	< 1.0 U	0.51 J	**57**	0.44 J	< 2.9 U
	9/27/2013	< 1.0 U	2.3	< 1.0 U	< 1.0 U	12	< 1.0 U	1.8	< 1.0 UB	0.51 J	**42**	0.18 J	< 2.0 U
	7/12/2019	< 1.0 U	0.54 J	< 1.0 U	< 1.0 U	9.0	< 1.0 U	0.59 J	< 1.0 U	0.37 J	**18**	0.31 J	< 2.0 U
	7/31/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	7.7	< 1.0 U	0.85 J*	< 1.0 U	< 1.0 U	**22**	< 1.0 U*	< 2.0 U
GM-28	9/1/1999	18	3.3	< 1.0 U	< 1.0 U	**175**	< 1.0 U	**316**	< 1.0 U	9.2	**768**	**3.2**	< 1.0 U
	9/21/2000	5.0	9.9	< 1.0 U	< 1.0 U	37	< 1.0 U	2.3	< 1.0 U	22	1.6	**12**	< 1.0 U
	11/15/2001	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	11	< 1.0 U	< 1.0 U	< 1.0 U
	9/24/2002	< 1.0 U	2.7	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	11	0.86 J	< 1.0 U	< 1.0 U
	10/1/2003	< 1.0 U	3.3	< 1.0 U	< 1.0 U	0.58	< 1.0 U	< 1.0 U	< 1.0 U	4.0	1.6	0.53 J	< 1.0 U
	9/15/2004	< 1.0 U	3.3	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	0.88 J	< 1.0 U	1.2	1.4	0.44 J	< 1.0 U
	10/18/2005	< 1.0 U	4.0	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	0.63 J	0.66 J	1.1	< 2.0 U
	9/27/2006	< 1.0 U	4.2	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	0.66 J	0.43 J	0.42 J	< 2.0 U
	9/20/2007	< 1.0 U	4.6	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	< 1.0 U	< 1.0 U	0.58 J	0.51 J	1.2	< 2.0 U
	10/22/2008	< 5.0 U	2.2 J	< 5.0 U	< 5.0 U	6.9	< 5.0 U	< 5.0 U	< 5.0 U	1.3 J	< 5.0 U	**6.5**	< 1.0 U
	11/16/2009	< 1.0 U	3.6	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 1.0 U	< 1.0 U	1.7	0.58 J	**3.3**	< 2.0 U
	9/28/2010	< 1.0 U	4.6	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**2.2**	< 2.0 U
	10/5/2011	< 1.0 U	2.1	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	0.63 J	< 1.0 U	0.69 J	0.41 J	0.57 J	< 2.0 U
GM-28R	12/28/2015	< 1.0 U	0.55 J	< 1.0 U	< 1.0 U	5.6	< 1.0 U	**49**	< 1.0 U	0.38 J	**24**	0.99 J	< 2.0 U
	8/22/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	13	< 1.0 U	1.3	< 1.0 U	0.31 J	0.29 J	< 1.0 U	< 2.0 U
	8/17/2017	< 1.0 U	0.25 J	< 1.0 U	< 1.0 U	6.0	< 1.0 U	4.6	< 1.0 U	< 1.0 U	0.33 J	0.72 J	< 2.0 U
	7/25/2018	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	3.5	< 1.0 U	< 1.0 U	0.30 J	0.70 J	< 2.0 U
	7/12/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**13**	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	< 2.0 U
	7/31/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	< 1.0 U	0.92 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-29	9/1/1999	38	4.3	1.3	< 1.0 U	**320**	< 1.0 U	< 20 U	< 1.0 U	11	**878**	**3.8**	< 1.0 U
	9/21/2000	25	17	3.1	< 1.0 U	**2871**	< 1.0 U	**20**	2.2	14	**289**	**788**	< 1.0 U
	11/13/2001	< 50 U	< 50 U	< 50 U	< 50 U	**1800**	21 J	**17 J**	< 50 U	26	**270**	**230**	52
	9/25/2002	16 J	< 4.0 U	< 4.0 U	< 4.0 U	**1300**	< 4.0 U	**18 J**	< 4.0 U	21	**310**	**140**	< 4.0 U
	9/24/2003	18 J	< 33 U	< 33 U	< 33 U	**1200**	< 33 U	**18 J**	< 33 U	20	**390**	**150**	< 33 U
	9/15/2004	21 J	< 50 U	< 50 U	< 50 U	**1200**	< 50 U	**20 J**	< 50 U	21 J	**440**	**230**	< 50 U
	10/17/2005	19 J	18 J	< 50 U	< 50 U	**1600**	< 50 U	**15 J**	< 50 U	27 J	**390**	**490**	< 1.0 U
	9/28/2006	17 J	15 J	< 33 U	< 33 U	**1300**	< 33 U	**15 J**	< 33 U	20 J	**310**	**210**	< 67 U
	9/26/2007	15 J	15 J	< 50 U	< 50 U	**1200**	< 50 U	**18 J**	< 50 U	19 J	**350**	**290**	< 1.0 U
	10/6/2008	12 J	11 J	< 33 U	< 33 U	**900**	< 33 U	**17 J**	< 33 U	16 J	**300**	**150**	< 67 U
	11/17/2009	18	12	< 1.0 U	< 1.0 U	**600**	< 1.0 U	**21 J**	< 1.0 U	20	**370**	**70**	< 20 U
	9/29/2010	11 J	11 J	< 20 U	< 20 U	**660**	< 20 U	**17 J**	< 20 U	19 J	**330**	**59**	< 4.0 U
	9/30/2011	11 J	8.5 J	< 1.0 U	< 1.0 U	**470**	< 1.0 U	**13**	< 1.0 U	17	**320**	**52**	< 25 U
	9/26/2012	10 J	8.2 J	< 20 U	< 20 U	**520**	< 20 U	**14 J**	< 20 U	15 J	**310**	**45**	< 4.0 U
	9/27/2013	15	12	1.7	0.20 J	**530**	< 1.0 U	**15**	< 1.0 U	20	**280**	**60**	< 2.0 U
	10/9/2014	9.1 J	9.5 J	< 1.0 U	< 1.0 U	**480**	< 1.0 U	**12 J**	< 1.0 U	15	**260**	**40**	< 29 U
	12/8/2015	9.9	10	1.2 J	< 1.7 U	**440**	< 1.7 U	**11**	< 1.7 U	15	**270**	**48**	< 3.3 U
	8/22/2016	10	10	< 2.0 U	< 2.0 U	**470**	< 2.0 U	**13**	< 2.0 U	14	**360**	**42**	< 4.0 U
	8/17/2017	9.6	13	1.0 J	< 2.0 U	**430**	< 2.0 U	**11**	< 2.0 U	16	**280**	**53**	< 4.0 U
	7/25/2018	8.1	10	< 2.0 U	< 2.0 U	**420**	< 2.0 U	**13**	< 2.0 U	13	**310**	**41**	< 4.0 U
	7/12/2019	8.4 J	9.2 J	< 13 U	< 13 U	**380**	< 13 U	**11 J**	< 13 U	13	**300**	**38**	< 27 U
	7/31/2020	7.8	9.5	< 1.3 U	< 1.3 U	**380**	< 1.3 U	**11**	< 1.3 U	25	**290**	**42**	< 2.7 U
GM-30	9/2/1999	< 1.0 U	54 J	< 1.0 U	< 1.0 U	7.5 J	**7030 J**	**9.5 J**	**6950 J**	< 1.0 U	< 1.0 U	< 1.0 U	**23300 J**
	9/20/2000	< 1.0 U	50.6	< 1.0 U	2.7	< 1.0 U	**2290**	< 1.0 U	98.9	< 1.0 U	< 1.0 U	< 1.0 U	6770
	11/13/2001	< 25	31	< 25	< 25	< 1.0 U2	**840**	< 25	5.0 J	< 1.0 U2	**12 J**	< 25	2000
	9/27/2002	< 33	34	< 33	< 33	< 1.0 U7	350	< 33	< 33	< 1.0 U7	< 33	< 33	1400
	9/23/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 62 U	**1000**	< 1.0 U	240	< 62 U	< 1.0 U	< 1.0 U	7000
	9/14/2004	< 4.0 U	33 J	< 4.0 U	< 4.0 U	< 20 U	530	< 4.0 U	< 4.0 U	< 20 U	< 4.0 U	< 4.0 U	3000
	10/17/2005	< 50 U	23 J	< 50 U	< 50 U	< 50 U	620	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	3800
	9/20/2006	< 33 U	25 J	< 33 U	< 33 U	< 33 U	570	< 33 U	5.8 J	< 33 U	< 33 U	< 33 U	2500
	9/26/2007	< 1.0 U	16 J	< 1.0 U	< 1.0 U	< 1.0 U	380	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1300
	10/6/2008	< 1.0 U	11	< 1.0 U	< 1.0 U	< 1.0 U	300	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	670
	9/27/2013	< 1.0 U	5.3	< 1.0 U	4.0	< 1.0 U	20	0.23 J	1.1	0.63 J	0.28 J	0.34 J	7.2
	10/9/2014	< 1.0 U	3.2	< 1.0 U	2.3	0.29 J	54	< 1.0 U	0.71 J	0.51 J	< 1.0 U	< 1.0 U	12
	12/11/2015	< 2.0 U	3	< 2.0 U	2.9	< 2.0 U	260	< 2.0 U	0.87 J	< 2.0 U	< 2.0 U	< 2.0 U	14
	8/26/2016	< 1.0 U	7.6	< 1.0 U	**8.9**	< 1.0 U	4.7	< 1.0 U	1.1	6.5	< 1.0 U	0.29 J	9.6

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-31	9/1/1999	< 1.0 U	1.3	< 1.0 U	< 1.0 U	7.8	< 1.0 U	1.3	< 1.0 U	< 1.0 U	**27**	< 1.0 U	< 1.0 U
	9/21/2000	< 1.0 U	1.1	< 1.0 U	< 1.0 U	40	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**8.5**	< 1.0 U	< 1.0 U
	11/15/2001	< 4.0 U	3.1 J	< 4.0 U	< 4.0 U	**120**	< 4.0 U	< 4.0 U	< 4.0 U	1.8J	**11**	**7.4**	< 4.0 U
	9/24/2002	< 6.0 U	5.9 J	< 6.0 U	< 6.0 U	**200**	< 6.0 U	< 6.0 U	< 6.0 U	3.5	**10**	**19**	< 6.0 U
	10/1/2003	< 5.0 U	6	< 5.0 U	< 5.0 U	**170**	< 5.0 U	< 5.0 U	< 5.0 U	3.5	**28**	**10**	< 5.0 U
	9/15/2004	1.4 J	4 J	< 5.0 U	< 5.0 U	**120**	< 5.0 U	2.5 J	< 5.0 U	2.7	**29**	**2.4 J**	< 5.0 U
	10/18/2005	3.4	6.2	0.42 J	< 2.0 U	**120**	< 2.0 U	< 2.0 U	< 2.0 U	3.7	**67**	**3.1**	< 4.0 U
	9/27/2006	2.3 J	5.1	< 4.0 U	< 4.0 U	**110**	< 4.0 U	< 4.0 U	< 4.0 U	2.9 J	**65**	1.2 J	< 8.0 U
	9/20/2007	3.7	4.8	< 3.3 U	< 3.3 U	**100**	< 3.3 U	< 3.3 U	< 3.3 U	2.8 J	**90**	1.1 J	< 6.7 U
	10/23/2008	2.9	3.2	< 2.5 U	< 2.5 U	**76**	< 2.5 U	< 2.5 U	< 2.5 U	3	**78**	0.9 J	< 5.0 U
	9/27/2013	9.8	2.3	< 1.0 U	< 1.0 U	21	< 1.0 U	0.43 J	< 1.0 U	1.2	**120**	< 1.0 U	< 2.0 U
	10/9/2014	3.8	2.8	< 2.0 U	< 2.0 U	54	< 2.0 U	0.48 J	< 2.0 U	1.6 J	**79**	< 2.0 U	< 4.0 U
	12/8/2015	2.9	2.5	< 1.0 U	< 1.0 U	48	< 1.0 U	< 1.0 U	< 1.0 U	1.5	**75**	0.64 J	< 2.0 U
GM-32	9/22/1999	< 1.0 U	3.3	< 1.0 U	< 1.0 U	2.6	< 1.0 U	1.2	1.0	4.2	3.2	**3.0**	< 1.0 U
	9/25/2000	< 1.0 U	36	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	10	20	< 1.0 U	< 1.0 U	< 1.0 U
	11/12/2001	< 5.0 U	6.2	< 5.0 U	4.3 J	< 2.5	0.79 J	< 5.0 U	12	2.9	< 5.0 U	1.1 J	3.0 J
	9/20/2002	< 1.0 U	9.7 J	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/1/2003	< 2.0 U	5.5	< 2.0 U	1.5 J	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	1.0	< 2.0 U	< 2.0 U	< 2.0 U
	9/14/2004	< 1.0 U	3.0 J	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/19/2005	< 1.0 U	4.9 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U
	9/19/2006	< 1.0 U	3.7 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U
	9/18/2007	< 5.0 U	4.3 J	< 5.0 U	1.6 J	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	1.0 J	< 5.0 U	< 5.0 U	3.4 J
	9/23/2008	< 1.0 U	4.0 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 20 U
	7/11/2019	< 1.0 U	0.45 J	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.26 J	< 2.0 U
	7/31/2020	< 1.0 U	0.43 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U*	< 2.0 U
GM-33	9/25/2003	21	8.4	1.0 J	< 2.5 U	19	< 2.5 U	**37**	< 2.5 U	0.72 J	**75**	< 2.5 U	< 2.5 U
	9/13/2004	17	5.4	1.1 J	< 2.0 U	9.5	< 2.0 U	**37**	< 2.0 U	0.45 J	**55**	< 2.0 U	< 2.0 U
	10/18/2005	18	6.4	0.69 J	< 1.0 U	7.4	< 1.0 U	**50**	< 1.0 U	0.36 J	**71**	1.0	< 2.0 U
	9/21/2006	18	4.5	1.1 J	< 1.0 U	6.9	< 1.0 U	**37**	< 1.0 U	0.44 J	**64**	< 1.0 U	< 3.3 U
	9/24/2007	15	4.9	0.68 J	< 1.0 U	5.5	< 1.0 U	**32**	< 1.0 U	0.34 J	**49**	< 1.0 U	< 3.3 U
	10/23/2008	8.4	2.9	0.58 J	< 1.0 U	4.1	< 1.0 U	**38**	< 1.0 U	< 1.0 U	**36**	< 1.0 U	< 2.9 U
	9/26/2013	3.4	1.1	< 1.0 U	< 1.0 U	1.3	< 1.0 U	**28**	< 1.0 U	< 1.0 U	**14**	< 1.0 U	< 2.0 U
	8/24/2015	0.61 J	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	**13**	< 1.0 U	< 1.0 U	**5.9**	< 1.0 U	< 2.0 U
GM-34	8/7/2002	4.8	2.7	< 1.0 U	< 1.0 U	3.0	< 1.0 U	**20**	< 1.0 U	0.4 J	**11**	< 1.0 U	< 1.0 U
GM-35	9/25/2003	17	46	4.0 J	< 8.0 U	**300**	< 8.0 U	**21**	< 8.0 U	12	**270**	**59**	< 8.0 U
	9/13/2004	17	36	4.1 J	< 1.0 U	**270**	< 1.0 U	**21**	< 1.0 U	9.1	**230**	**50**	< 1.0 U
	10/18/2005	12	36	1.8 J	< 5.0 U	**190**	< 5.0 U	**29**	< 5.0 U	9.3	**240**	**23**	< 1.0 U
	9/22/2006	5.5 J	26 J	< 5.0 UJ	< 5.0 UJ	**160 J**	< 5.0 UJ	**14 J**	< 5.0 UJ	11 J	**130 J**	**13 J**	< 1.0 UJ
	9/24/2007	5.8 J	26	< 1.0 U	< 1.0 U	**140**	< 1.0 U	**22**	< 1.0 U	8 J	**110**	**12**	< 20 U
	9/29/2008	4.6 J	20	< 1.0 U	< 1.0 U	**92**	< 1.0 U	**20**	< 1.0 U	9.4 J	**88**	**7.9 J**	< 20 U
	11/13/2009	4.7	17	1.0 J	< 3.3 U	**74**	< 3.3 U	**33**	< 3.3 U	8.2	**120**	**4.6**	< 6.7 U
	9/27/2010	4.8	19	0.97 J	< 4.0 U	**73**	< 4.0 U	**37**	< 4.0 U	8.9	**120**	**4.3**	< 8.0 U
	9/30/2011	2.6 J	20	0.64 J	< 3.3 U	66	< 3.3 U	**17**	< 3.3 U	11	**59**	**7.7**	< 6.7 U
	9/6/2012	< 20 U	27	< 20 U	< 20 U	**84**	< 20 U	< 20 U	< 20 U	17 J	**9.9 J**	**14 J**	< 4.0 U
	9/26/2013	< 50 U	30 J	< 50 U	< 50 U	69	< 50 U	< 50 U	< 50 U	18 J	**18 J**	**11 J**	< 1.0 U
	10/8/2014	< 25 U	22 J	< 25 U	< 25 U	57	< 25 U	**6.0 J**	< 25 U	14 J	**28**	< 25 U	< 50 U
	11/4/2015	4	34	3.7	0.52 J	**300**	< 1.0 U	**47**	< 1.0 U	19	**200**	**14**	< 2.0 U
	8/23/2016	<50 U	19 J	<50 U	<50 U	**120**	<50 U	**27 J**	<50 U	<50 U	**120**	<50 U	<100 U
	7/30/2020	< 20 U	19 J	< 20 U	< 20 U	**92 F1**	< 20 U	**13 J**	< 20 U	9.0 J	**150**	< 20 U	< 40 U
GM-36	8/5/2002	5.5	21	< 2.0 U	< 2.0 U	55	< 2.0 U	**54**	< 2.0 U	1.6 J	**50**	< 2.0 U	< 2.0 U
	7/30/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	< 2.0 U
GM-37	8/6/2002	17	7.1	0.98 J	< 2.5 U	41	< 2.5 U	**58**	< 2.5 U	1.6	**84**	< 2.5 U	< 2.5 U
	8/24/2015	2.0	0.65 J	< 1.0 U	< 1.0 U	5.9	< 1.0 U	**24**	< 1.0 U	< 1.0 U	**48**	< 1.0 U	< 2.0 U
	7/30/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.7**	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 2.0 U
GM-38	8/6/2002	6	6.5	< 2.0 U	< 2.0 U	22	< 2.0 U	**50**	< 2.0 U	1	**25**	< 2.0 U	< 2.0 U
	7/30/2020	1.4	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**20**	< 1.0 U	< 1.0 U	3.4	< 1.0 U	< 2.0 U
GM-43	8/19/2004	< 9.1 U	6.9 J	< 9.1 U	< 9.1 U	**210**	< 9.1 U	**16**	< 9.1 U	8.7	**100**	**2.8 J**	< 9.1 U
	9/22/2006	< 5.0 UJ	3.7 J	< 5.0 UJ	< 5.0 UJ	**120 J**	< 5.0 UJ	**21 J**	< 5.0 UJ	5.7 J	**98 J**	< 5.0 UJ	< 1.0 UJ
	11/17/2009	2.5	5.7	0.74 J	<2.5 U	**150**	<2.5 U	**28 J**	<2.5 U	6.2	**180**	1.0 J	<5.0 U
	9/24/2010	< 8.0 U	6.8 J	< 8.0 U	< 8.0 U	**220**	< 8.0 U	**26**	< 8.0 U	8.1	**170**	< 8.0 U	< 1.0 U
	9/30/2011	< 4.0 U	4.2	1.0 J	< 4.0 U	**130**	< 4.0 U	**22**	< 4.0 U	5.3	**180**	1.0 J	< 8.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**79**	< 1.0 U	**28**	< 1.0 U	4.1 J	**230**	< 1.0 U	< 20 U
	9/26/2013	1.0	2.0	< 1.0 U	< 1.0 U	32	< 1.0 U	**22**	< 1.0 U	3.7	**170**	0.21 J	< 2.0 U
	10/8/2014	1.8 J	< 5.7 U	< 5.7 U	< 5.7 U	25	< 5.7 U	**35**	< 5.7 U	1.5 J	**220**	< 5.7 U	< 1.0 U
	11/5/2015	1.4	0.63 J	< 1.0 U	< 1.0 U	14	< 1.0 U	**42**	< 1.0 U	0.89 J	**270**	< 1.0 U	< 2.0 U
	8/23/2016	1.6 J	0.72 J	< 2.0 U	< 2.0 U	11	< 2.0 U	**41**	< 2.0 U	0.83 J	**260**	< 2.0 U	< 4.0 U
GM-44	8/19/2004	4 J	3.3 J	< 6.0 U	< 6.0 U	**130**	< 6.0 U	**57**	< 6.0 U	4.4	**140**	< 6.0 U	< 6.0 U
	4/9/2010	1.8 J	2.5 J	0.70 J	< 3.3 U	48	< 3.3 U	**70**	< 3.3 U	4.4	**110**	< 3.3 U	< 6.7 U
	10/8/2014	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	16	< 6.7 U	**100**	< 6.7 U	< 6.7 U	**180**	< 6.7 U	< 1.0 U
	11/5/2015	1.5	0.94 J	< 1.0 U	< 1.0 U	18	< 1.0 U	**110**	< 1.0 U	0.81 J	**180**	< 1.0 U	< 2.0 U
GM-45	8/19/2004	5.8 J	8.5 J	< 9.1 U	< 9.1 U	**79**	< 9.1 U	**220**	< 9.1 U	3.5 J	**220**	< 9.1 U	< 9.1 U
	9/22/2006	3.5 J	3.1 J	< 8.0 UJ	< 8.0 UJ	54 J	< 8.0 UJ	**230 J**	< 8.0 UJ	2.7 J	**230 J**	< 8.0 UJ	< 1.0 UJ
	4/9/2010	2.7 J	2.5 J	< 5.7 U	< 5.7 U	36	< 5.7 U	**200**	< 5.7 U	3.3 J	**180**	< 5.7 U	< 1.0 U
	10/8/2014	3.2 J	2.2 J	< 4.0 U	< 4.0 U	37	< 4.0 U	**150**	< 4.0 U	2.0 J	**140**	< 4.0 U	< 8.0 U
	11/4/2015	6.5	3.3	< 1.0 U	< 1.0 U	36	< 1.0 U	**190**	< 1.0 U	2.7	**180**	0.50 J	< 2.0 U
GM-46	3/2/2006	< 1.0 U	2.7	< 1.0 U	< 1.0 U	6.8	< 1.0 U	< 1.0 U	< 1.0 U	0.35 J	22	1.9	< 2.0 U
	11/30/2006	< 1.0 U	0.43 J	< 1.0 U	< 1.0 U	5.2	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	1.5	1.5	< 2.0 U
	10/9/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	0.47 J	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-53	9/14/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-59	9/15/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.0 J	< 1.0 U	**310**	< 1.0 U	< 1.0 U	**94**	< 1.0 U	< 29 U
	10/3/2008	< 33 U	< 33 U	< 33 U	< 33 U	41	< 33 U	**750**	< 33 U	< 33 U	**750**	< 33 U	< 67 U
	11/17/2009	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	3.3 J	< 6.7 U	**500 J**	< 6.7 U	< 6.7 U	**170**	< 6.7 U	< 1.0 U
	4/8/2010	< 8.0 U	< 8.0 U	< 8.0 U	< 8.0 U	2.9 J	< 8.0 U	**280**	< 8.0 U	< 8.0 U	**69**	< 8.0 U	< 1.0 U
	9/29/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5.7 J	< 1.0 U	**520**	< 1.0 U	< 1.0 U	**350**	< 1.0 U	< 31 U
	9/30/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.4 J	< 1.0 U	**520**	< 1.0 U	< 1.0 U	**510**	< 1.0 U	< 25 U
	9/7/2012	< 50 U	< 50 U	< 50 U	< 50 U	16 J	< 50 U	**800**	< 50 U	< 50 U	**710**	< 50 U	< 1.0 U
	9/27/2013	1.0	< 1.0 U	< 1.0 U	< 1.0 U	11	< 1.0 U	**1000**	< 1.0 U	0.56 J	**1100**	< 1.0 U	< 2.0 U
	10/10/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.7 J	< 1.0 U	**420**	< 1.0 U	< 1.0 U	**110**	< 1.0 U	< 27 U
	12/8/2015	0.48 J	< 1.0 U	< 1.0 U	< 1.0 U	2.4	< 1.0 U	**270**	< 1.0 U	0.34 J	**97**	< 1.0 U	< 2.0 U
	8/23/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	2.6	< 2.0 U	**280**	< 2.0 U	< 2.0 U	**170**	< 2.0 U	< 4.0 U
GM-60	9/15/2006	< 25 U	< 25 U	< 25 U	< 25 U	**220**	< 25 U	**510**	< 25 U	< 25 U	**570**	< 25 U	< 50 U
	10/3/2008	< 25 U	< 25 U	< 25 U	< 25 U	**360**	< 25 U	**900**	< 25 U	< 25 U	**920**	< 25 U	< 50 U
	11/17/2009	< 20 U	< 20 U	< 20 U	< 20 U	**160**	< 20 U	**1100 J**	< 20 U	< 20 U	**1400**	< 20 U	< 4.0 U
	4/8/2010	< 22 U	< 22 U	< 22 U	< 22 U	17 J	< 22 U	**820**	< 22 U	< 22 U	**740**	< 22 U	< 4.0 U
	9/29/2010	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**940**	< 4.0 U	**970**	< 4.0 U	10 J	**1300**	**18 J**	< 8.0 U
	9/30/2011	< 20 U	< 20 U	< 20 U	< 20 U	**370**	< 20 U	**620**	< 20 U	3.8 J	**810**	**11 J**	< 4.0 U
	9/7/2012	< 59 U	< 59 U	< 59 U	< 59 U	**480**	< 59 U	**610**	< 59 U	< 59 U	**980**	< 59 U	< 1.0 U
	9/27/2013	1.4	1.3	1.5	< 1.0 U	**400**	< 1.0 U	**670**	< 1.0 U	4.2	**1100**	**2.1**	< 2.0 U
	10/9/2014	< 67 U	< 67 U	< 67 U	< 67 U	**96**	< 67 U	**860**	< 67 U	< 67 U	**1400**	< 67 U	< 1.0 U
	11/5/2015	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	16	< 4.0 U	**770**	< 4.0 U	< 4.0 U	**910**	< 4.0 U	< 8.0 U
	8/23/2016	1.1 J	0.69 J	< 2.0 U	< 2.0 U	12	< 2.0 U	**530**	< 2.0 U	< 2.0 U	**700**	< 2.0 U	< 4.0 U
GM-66	5/2/2007	< 2.9 U	8.3	< 2.9 U	< 2.9 U	**84**	< 2.9 U	< 2.9 U	< 2.9 U	3.3	**31**	**4.1**	< 5.7 U
	10/8/2014	< 1.0 U	12	< 1.0 U	< 1.0 U	**280**	< 1.0 U	< 1.0 U	< 1.0 U	11	**110**	**3.0 J**	< 20 U
	12/8/2015	< 1.0 U	12	2.5	< 1.0 U	**280**	< 1.0 U	< 1.0 U	< 1.0 U	11	**110**	**3.0**	< 2.0 U
GM-67S	5/3/2007	< 5.7 U	2.8 J	< 5.7 U	< 5.7 U	5.2 J	< 5.7 U	1.1 J	< 5.7 U	< 5.7 U	**140**	< 5.7 U	< 1.0 U
	10/10/2014	< 5.0 U	1.6 J	< 5.0 U	< 5.0 U	2.3 J	< 5.0 U	1.1 J	< 5.0 U	< 5.0 U	**140**	< 5.0 U	< 1.0 U
	11/4/2015	< 1.0 U	2.1	< 1.0 U	< 1.0 U	2.3	< 1.0 U	1.6	< 1.0 U	0.34 J	**130**	< 1.0 U	< 2.0 UJ
GM-68S	5/4/2007	0.62 J	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	**28**	< 2.5 U	< 2.5 U	**78**	< 2.5 U	< 5.0 U
GM-71	5/3/2007	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**62**	< 2.0 U	< 2.0 U	**11**	< 2.0 U	< 4.0 U
	10/9/2014	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	< 1.0 U	**19**	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
	11/3/2015	0.51 J	0.35 J	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	**19**	< 1.0 U	< 1.0 U	**20**	< 1.0 U	< 2.0 U
GM-72	5/3/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**53**	< 1.0 U	< 1.0 U	0.66 J	< 1.0 U	< 3.3 U
	10/9/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-74S	9/27/2007	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**140**	< 4.0 U	< 4.0 U	**83**	< 4.0 U	< 8.0 U
	4/9/2010	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	**200**	< 5.7 U	< 5.7 U	**44**	< 5.7 U	< 1.0 U
	8/23/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**69**	< 2.0 U	< 2.0 U	**14 K**	< 2.0 U	< 4.0 U
GM-75S	9/26/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**490**	< 1.0 U	< 1.0 U	**210**	< 1.0 U	< 29 U
	10/6/2008	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	**690**	< 20 U	< 20 U	**250**	< 20 U	< 4.0 U
	11/16/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.9 J	< 1.0 U	**640**	< 1.0 U	< 1.0 U	**260**	< 1.0 U	< 20 U
	9/29/2010	< 29 U	< 29 U	< 29 U	< 29 U	14 J	< 29 U	**650**	< 29 U	< 29 U	**890**	< 29 U	< 57 U
	9/30/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.4 J	< 1.0 U	**430**	< 1.0 U	< 1.0 U	**720**	< 1.0 U	< 33 U
	9/7/2012	< 29 U	< 29 U	< 29 U	< 29 U	< 29 U	< 29 U	**420**	< 29 U	< 29 U	**250**	< 29 U	< 57 U
	9/27/2013	1.8	0.53 J	< 1.0 U	< 1.0 U	4.5	< 1.0 U	**480**	< 1.0 U	0.29 J	**350**	< 1.0 U	< 2.0 U
	10/9/2014	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	**460**	< 20 U	< 20 U	**170**	< 20 U	< 4.0 U
	12/11/2015	0.58 J	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	< 1.3 U	**420**	< 1.3 U	< 1.3 U	**68**	< 1.3 U	< 2.5 U
	8/24/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**520**	< 2.0 U	< 2.0 U	**68**	< 2.0 U	< 4.0 U
GM-76S	9/23/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
	10/9/2014	< 1.0 U	< 1.0 U	< 1.0 U	0.39 J	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	10/30/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	0.64 J	< 1.0 U	< 2.0 U
GM-83S	2/26/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 1.0 U	0.18 J	0.3 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	0.19 J	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
HR-1	9/16/1999	1.6	2.4	< 1.0 U	< 1.0 U	5.8	< 1.0 U	**44**	< 1.0 U	3.9	**56**	< 1.0 U	< 1.0 U
	9/25/2000	1.3	2.4	< 1.0 U	< 1.0 U	8.5	< 1.0 U	**33**	< 1.0 U	3.2	**56**	< 1.0 U	< 1.0 U
	11/8/2001	2.2 J	2.8 J	< 3.3 U	< 3.3 U	9.9	< 3.3 U	**36**	< 3.3 U	2.8	**86 B**	< 3.3 U	< 3.3 U
	9/23/2002	< 2.0 U	2.8	< 2.0 U	< 2.0 U	4.5	< 2.0 U	**33**	< 2.0 U	3.2	**33**	< 2.0 U	< 2.0 U
	9/18/2003	1 J	2.6	< 2.0 U	< 2.0 U	2.3	< 2.0 U	**27**	< 2.0 U	3.2	**56**	< 2.0 U	< 2.0 U
	9/13/2004	0.56 J	2.5	< 1.0 U	< 1.0 U	24	< 1.0 U	**23**	< 1.0 U	2.3	**30**	0.55 J	< 1.0 U
	10/18/2005	1.2	2.7	< 1.0 U	< 1.0 U	19	< 1.0 U	**28**	< 1.0 U	2.3	**43**	1.1	< 2.0 U
	9/25/2006	0.57 J	1.7	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	1.4 J	**50**	< 1.0 U	< 3.3 U
	9/24/2007	0.45 J	2.2	0.21J	< 1.0 U	9.5	< 1.0 U	**20**	< 1.0 U	1.9	**40**	< 1.0 U	< 2.0 U
	9/29/2008	0.77 J	1.8 J	< 2.5 U	< 2.5 U	5	< 2.5 U	**27**	< 2.5 U	2 J	**70**	< 2.5 U	< 5.0 U
	9/26/2013	0.99 J	1.2	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**30**	< 1.0 U	0.90 J	**100**	< 1.0 U	< 2.0 U
	10/8/2014	1.3 J	1.4 J	< 5.0 U	< 5.0 U	20	< 5.0 U	**36**	< 5.0 U	1.5 J	**120**	< 5.0 U	< 1.0 U
	11/5/2015	1.2	0.51 J	< 1.0 U	< 1.0 U	6.6	< 1.0 U	**76**	< 1.0 U	0.43 J	**210**	< 1.0 U	< 2.0 U
	8/23/2016	1.1 J	< 2.0 U	< 2.0 U	< 2.0 U	3.3	< 2.0 U	**63**	< 2.0 U	< 2.0 U	**190**	< 2.0 U	< 4.0 U
	8/17/2017	1.0	0.39 J	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	**56**	< 1.0 U	< 1.0 U	0.65 J	< 1.0 U	< 2.0 U
	7/25/2018	0.77 J	0.96 J	< 1.0 U	< 1.0 U	20	< 1.0 U	**99**	< 1.0 U	1.3	**40**	< 1.0 U	< 2.0 U
	7/29/2020	< 10 U	< 10 U	< 10 U	< 10 U	20	< 10 U	**120**	< 10 U	< 10 U	**25**	< 10 U	< 20 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
HR-2	9/16/1999	< 1.0 U	3.9	< 1.0 U	< 1.0 U	9.6	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	4.6	< 1.0 U	< 1.0 U	8.6	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U
	11/7/2001	< 1.0 U	4.2	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	1.1	0.56 J	< 1.0 U	< 1.0 U
	9/24/2002	< 1.0 U	4.9	< 1.0 U	< 1.0 U	8.8	< 1.0 U	< 1.0 U	< 1.0 U	1.2	0.46 J	< 1.0 U	< 1.0 U
	9/16/2003	< 1.0 U	4.5	< 1.0 U	< 1.0 U	7.2	< 1.0 U	< 1.0 U	< 1.0 U	0.96	0.40 J	< 1.0 U	< 1.0 U
	9/16/2004	< 1.0 U	5.6	< 1.0 U	< 1.0 U	7.8	< 1.0 U	0.37 J	< 1.0 U	1.1	0.53 J	0.23 J	< 1.0 U
	10/20/2005	< 1.0 U	4.4	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 1.0 U	< 1.0 U	0.78 J	0.35 J	0.29 J	< 2.0 U
	9/25/2006	< 1.0 U	5.2	< 1.0 U	< 1.0 U	5.6	< 1.0 U	< 1.0 U	< 1.0 U	0.79 J	0.48 J	< 1.0 U	< 2.0 U
	9/26/2007	< 1.0 U	5.3	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 1.0 U	< 1.0 U	0.76 J	0.45 J	< 1.0 U	< 2.0 U
	10/1/2008	< 1.0 U	4.6	< 1.0 U	< 1.0 U	3.4	< 1.0 U	< 1.0 U	< 1.0 U	0.47 J	0.36 J	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	5.6	< 1.0 U	< 1.0 U	3.7	< 1.0 U	< 1.0 U	< 1.0 U	0.58 J	0.45 J	< 1.0 U	< 2.0 U
	9/28/2010	< 1.0 U	5.6	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 1.0 U	< 1.0 U	0.41 J	0.39 J	< 1.0 U	< 1.0 U
	9/28/2011	< 1.0 U	6.4	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	0.32 J	0.43 J	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	7.7	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	0.41 J	< 1.0 U	< 2.0 U
	9/27/2013	< 1.0 U	7.5	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	0.40 J	< 1.0 U	< 2.0 U
	10/8/2014	< 1.0 U	7.3	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	0.29 J	< 1.0 UB	< 1.0 U	< 2.0 U
	10/30/2015	< 1.0 U	8.3	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	< 1.0 U	< 2.0 U
	8/25/2016	< 1.0 U	9.5	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 1.0 U	< 1.0 U	0.39 J	< 1.0 UB	< 1.0 U	< 2.0 U
HR-3	9/16/1999	< 1.0 U	6.2	< 1.0 U	< 1.0 U	6.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	5.1	< 1.0 U	< 1.0 U	4.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/7/2001	< 1.0 U	6.9	< 1.0 U	< 1.0 U	5.1	< 1.0 U	< 1.0 U	< 1.0 U	0.60	0.66 J	< 1.0 U	< 1.0 U
	9/24/2002	< 1.0 U	15	< 1.0 U	< 1.0 U	9.9	< 1.0 U	< 1.0 U	< 1.0 U	1.0	1.4	< 1.0 U	< 1.0 U
	9/16/2003	< 1.0 U	13	< 1.0 U	< 1.0 U	9.9	< 1.0 U	< 1.0 U	< 1.0 U	1.1	1.6	< 1.0 U	< 1.0 U
	9/16/2004	0.27 J	23	< 1.0 U	< 1.0 U	18	< 1.0 U	0.32 J	< 1.0 U	1.8	**8.1**	< 1.0 U	< 1.0 U
	10/20/2005	0.34 J	18	< 1.0 U	< 1.0 U	11	< 1.0 U	< 1.0 U	< 1.0 U	1.5	**10**	< 1.0 U	< 2.0 U
	9/25/2006	< 1.0 U	10	< 1.0 U	< 1.0 U	8.2	< 1.0 U	< 1.0 U	< 1.0 U	0.99 J	**7.2**	< 1.0 U	< 2.0 U
	10/2/2008	0.84 J	16	0.27 J	< 1.0 UJ	17	< 1.0 U	< 1.0 U	< 1.0 U	1.6	**32**	**2.2**	< 2.0 U
	9/27/2013	6.9	12	0.51 J	< 1.0 U	59	< 1.0 U	< 1.0 U	< 1.0 U	2.2	**190**	0.93 J	< 2.0 U
	10/8/2014	7.6 J	11	< 1.0 U	< 1.0 U	**82**	< 1.0 U	< 1.0 U	< 1.0 U	2.7 J	**220**	**6.4 J**	< 2.0 U
	11/4/2015	7.3	9.6	0.68 J	< 1.0 U	**82**	< 1.0 U	< 1.0 U	< 1.0 U	2.6	**200**	**13**	< 2.0 U
	8/25/2016	7.1	6.6	< 2.0 U	< 2.0 U	**93**	< 2.0 U	0.95 J	< 2.0 U	2.5	**200**	**4.2**	< 4.0 U
HR-4	9/14/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U
	9/20/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/6/2001	0.17 J	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	0.88 J	< 1.0 U	< 0.50 U	1.0	< 1.0 U	< 1.0 U
	9/27/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.59 J	< 1.0 U	< 0.50 U	0.71 J	< 1.0 U	< 1.0 U
	9/18/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.55 J	< 1.0 U	< 0.50 U	0.71 J	< 1.0 U	< 1.0 U
	9/16/2004	< 1.0 U	0.77 J	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.3	< 1.0 U	< 0.50 U	0.50 J	< 1.0 U	< 1.0 U
	10/20/2005	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.39 J	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 2.0 U
	9/25/2006	< 1.0 U	1.6	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	0.41 J	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	< 2.0 U
	9/26/2007	< 1.0 U	3.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 2.0 U
	9/30/2008	< 1.0 U	4.1	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	5.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2010	< 1.0 U	3.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	4.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 2.0 U
	9/7/2012	0.23 J	5	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 2.0 U
	9/27/2013	0.29 J	3.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 2.0 U
	10/7/2014	0.71 J	2.0	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	10/30/2015	1.2	1.6	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	< 2.0 U
	8/19/2016	2	1.6	< 1.0 U	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 2.0 U
	8/16/2017	1.9	2.1	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	7/24/2018	1.6	1.6	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	0.16 J	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	< 2.0 U
	7/9/2019	2.2	1.7	0.19 J	< 1.0 U	0.56 J	< 1.0 U	0.22 J	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	< 2.0 U
	7/29/2020	1.9	1.3	< 1.0 U	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 2.0 U
HR-5	9/16/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	10.5	< 1.0 U	< 1.0 U	< 1.0 U	1.1	**12**	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5.6	< 1.0 U	< 1.0 U	3.0	< 1.0 U	**8.1**	< 1.0 U	2.0
	11/7/2001	0.17 J	0.55 J	< 1.0 U	< 1.0 U	7.8	< 1.0 U	< 1.0 U	< 1.0 U	0.74	**11**	< 1.0 U	< 1.0 U
	9/23/2002	< 1.0 U	0.55 J	< 1.0 U	< 1.0 U	7.5	< 1.0 U	< 1.0 U	< 1.0 U	0.58	**13**	< 1.0 U	< 1.0 U
	9/18/2003	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 1.0 U	< 1.0 U	0.46 J	**11**	< 1.0 U	< 1.0 U
	9/13/2004	< 1.0 U	0.43 J	< 1.0 U	< 1.0 U	4.8	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	**11**	< 1.0 U	< 1.0 U
	10/18/2005	< 1.0 U	0.54 J	< 1.0 U	< 1.0 U	4.6	< 1.0 U	< 1.0 U	< 1.0 U	0.52 J	**13**	1.1	< 2.0 U
	9/22/2006	< 1.0 UJ	0.41 J	< 1.0 UJ	< 1.0 UJ	5.2 J	< 1.0 UJ	0.27 J	< 1.0 UJ	0.46 J	**13 J**	0.22 J	< 2.0 UJ
	9/24/2007	< 1.0 U	0.51J	< 1.0 U	< 1.0 U	5.4	< 1.0 U	< 1.0 U	< 1.0 U	0.41J	**13**	< 1.0 U	< 2.0 U
	9/29/2008	< 1.0 U	0.48 J	< 1.0 U	< 1.0 U	5.4	< 1.0 U	< 1.0 U	< 1.0 U	0.59 J	**13**	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	0.70 J	< 1.0 U	< 1.0 U	7.0	< 1.0 U	0.57 J	< 1.0 U	0.63 J	**14**	0.36 J	< 2.0 U
HR-6	9/16/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U
	9/23/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.5	< 1.0 U	< 1.0 U
HR-7	9/17/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**9.8**	< 1.0 U	< 1.0 U
	9/19/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.65	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**9.4**	< 1.0 U	< 1.0 U
	9/19/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.65	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**9.4**	< 1.0 U	< 1.0 U
	2/26/2008	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	0.94 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.3**	< 1.0 U	< 2.0 U
	9/23/2010	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.5**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.3**	< 1.0 U	< 2.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.0**	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	0.35 J	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.2**	< 1.0 U	< 2.0 U
	10/7/2014	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.2**	< 1.0 U	< 2.0 U
	11/5/2015	< 1.0 U	< 1.0 U	< 1.0 UF2J	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.9**	< 1.0 U	< 2.0 U
	8/15/2016	< 1.0 U	0.34 J	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.0**	< 1.0 U	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
HR-16	9/23/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U
	9/18/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.46J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.5	< 1.0 U	< 1.0 U
	1/21/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U
	9/6/2012	0.62 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 2.0 U
	9/25/2013	0.61 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.14 J	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U
	10/7/2014	0.58 J	0.64 J	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 2.0 U
	11/5/2015	< 1.0 U	1.3	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	0.63 J	2.7	< 1.0 U	< 2.0 U
	8/22/2016	< 1.0 U	1.5	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	0.67 J	3.6	< 1.0 U	< 2.0 U
	7/9/2019	0.36 J	0.75 J	< 1.0 U	< 1.0 U	0.62 J	< 1.0 U	0.17 J	< 1.0 U	0.21 J	2.9	< 1.0 U	< 2.0 U
	7/29/2020	0.52 J	0.67 J	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 2.0 U
HR-17	9/23/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.2	< 1.0 U	**16**	< 1.0 U	< 1.0 U	**7.4**	< 1.0 U	< 1.0 U
	9/28/2000	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.7	< 1.0 U	< 1.0 U	4.4	< 1.0 U	< 1.0 U
	11/8/2001	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	3.3	< 1.0 U	< 0.50 U	4.2 B	< 1.0 U	< 1.0 U
	9/18/2002	0.39 J	1.5	< 1.0 U	< 1.0 U	5.1	< 1.0 U	**22**	< 1.0 U	1.4	**12**	< 1.0 U	< 1.0 U
	9/25/2003	< 2.0 U	0.75 J	< 2.0 U	< 2.0 U	2.2	< 2.0 U	**64**	< 2.0 U	0.7 J	**10**	< 2.0 U	< 2.0 U
	9/17/2004	< 5.0 U	2.0 J	< 5.0 U	< 5.0 U	7.1	< 5.0 U	**82**	< 5.0 U	1.6 J	**18**	< 5.0 U	< 5.0 U
	10/19/2005	< 1.0 U	0.70 J	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**45**	< 1.0 U	0.57 J	**8.3**	< 1.0 U	< 3.7 U
	9/18/2006	< 1.0 U	0.6 J	< 1.0 U	< 1.0 U	4.6	< 1.0 U	**34**	< 1.0 U	0.46 J	**5.6**	< 1.0 U	< 2.0 U
	9/25/2007	< 2.5 U	1.2 J	< 2.5 U	< 2.5 U	1.9 J	< 2.5 U	**51**	< 2.5 U	0.69 J	**16**	< 2.5 U	< 5.0 U
	9/26/2008	< 4.0 U	1.1 J	< 4.0 U	< 4.0 U	2.7 J	< 4.0 U	**120**	< 4.0 U	1.0 J	**31**	< 4.0 U	< 8.0 U
	11/12/2009	< 2.5 U	1.7 J	< 2.5 U	< 2.5 U	1.9 J	< 2.5 U	**85**	< 2.5 U	1.3 J	**21**	< 2.5 U	< 5.0 U
	9/23/2010	< 1.0 U	1.9	< 1.0 U	< 1.0 U	2.2	< 1.0 U	**60**	< 1.0 U	1.2 J	**18**	< 1.0 U	< 3.3 U
	9/29/2011	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	**110**	< 5.7 U	< 5.7 U	**57**	< 5.7 U	< 1.0 U
	9/6/2012	< 9.1 U	< 9.1 U	< 9.1 U	< 9.1 U	2.4 J	< 9.1 U	**140**	< 9.1 U	< 9.1 U	**75**	< 9.1 U	< 1.0 U
	9/25/2013	1.3	0.93 J	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**150**	< 1.0 U	0.92 J	**100**	< 1.0 U	< 2.0 U
	10/7/2014	< 5.0 U	2.0 J	< 5.0 U	< 5.0 U	2.2 J	< 5.0 U	**170**	< 5.0 U	< 5.0 U	**160**	< 5.0 U	< 1.0 U
	11/4/2015	1.5	0.61 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**150**	< 1.0 U	0.73 J	**160**	< 1.0 U	< 2.0 U
	8/25/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**170**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
	8/17/2017	0.80 J	0.60 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	**150**	< 1.0 U	< 1.0 U	**24**	< 1.0 U	< 2.0 U
	7/25/2018	4.8	2.2	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**180**	< 1.0 U	< 1.0 U	0.92 J	< 1.0 U	< 2.0 U
	7/9/2019	7.4	1.6	0.54 J	< 1.0 U	1.2	< 1.0 U	**150**	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 2.0 U
	2/13/2020	1.7	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	**170**	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 2.0 U
	7/29/2020	3.6	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**160**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
ME-1	8/31/1999	14	2.4	< 1.0 U	< 1.0 U	38	< 1.0 U	**84**	< 1.0 U	1.5	**292**	**36**	< 1.0 U
ME-3	8/31/1999	43	6.1	< 1.0 U	< 1.0 U	5.7	< 1.0 U	**58**	< 1.0 U	< 1.0 U	**48**	< 1.0 U	< 1.0 U
	9/21/2000	6.4	3.4	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 1.0 U	1.4	2.9	< 1.0 U	**2.1**	< 1.0 U
	11/15/2001	1.6	5.9	< 1.0 U	< 1.0 U	16	< 1.0 U	1.3	0.34 J	2.7	3.8	**7.3**	< 1.0 U
	9/24/2002	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 1.0 U	< 2.5 U	< 2.5 U	< 2.5 U	< 1.0 U	< 2.5 U	< 2.5 U	< 2.5 U
	10/1/2003	0.31 J	24	< 1.0 U	0.6 J	0.96	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.5	< 1.0 U	< 1.0 U
	9/15/2004	0.53 J	18	< 1.0 U	< 1.0 U	2.2	< 1.0 U	0.21 J	< 1.0 U	< 0.50 U	1.5	1.1	< 1.0 U
	10/18/2005	1.6	15	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	1.6	< 2.0 U
	9/27/2006	1.1	8.5	< 1.0 U	< 1.0 U	3.5	< 1.0 U	1.9	< 1.0 U	0.34 J	2.4	**2.2**	< 2.0 U
	9/20/2007	2.0	3.8	< 1.0 U	< 1.0 U	1.2	< 1.0 U	**5.2**	< 1.0 U	< 1.0 U	3.6	0.82 J	< 2.0 U
	10/22/2008	2.1	1.8	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**8.1**	< 1.0 U	< 1.0 U	4.9	0.7 J	< 2.0 U
	9/27/2013	1.0	0.41 J	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	**7.1**	< 1.0 U	< 1.0 U	4.6	< 1.0 U	< 2.0 U
ME-6	8/31/1999	2.9	< 1.0 U	< 1.0 U	< 1.0 U	**255**	< 1.0 U	**213**	< 1.0 U	< 1.0 U	**474**	< 1.0 U	< 1.0 U
	9/21/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**99**	< 1.0 U	**6.7**	1.9	2.5	**19**	**6.1**	< 1.0 U
	11/15/2001	2.2	2.7	< 2.0 U	< 2.0 U	65	< 2.0 U	**8.2**	0.42 J	1.8	**23**	**13**	< 2.0 U
	9/25/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5.2	< 1.0 U	< 1.0 U	6.6J	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/1/2003	13	7.2	< 2.0 U	0.46 J	20	< 2.0 U	**12**	< 2.0 U	< 1.0 U	**31**	**2.9**	< 2.0 U
	9/15/2004	4.1	6.3	0.26 J	< 1.0 U	14	< 1.0 U	**5.3**	< 1.0 U	0.56	**9.2**	**2.4**	< 1.0 U
	10/18/2005	2.2	7.0	< 1.0 U	< 1.0 U	13	< 1.0 U	**9.8**	< 1.0 U	0.93 J	**25**	**5.6**	< 2.0 U
	9/27/2006	1.4	6.3	< 1.0 U	< 1.0 U	27	< 1.0 U	**13**	< 1.0 U	1.3 J	**32**	**11**	< 2.9 U
	9/20/2007	0.61 J	6.4	< 1.0 U	< 1.0 U	9.2	< 1.0 U	4.5	< 1.0 U	0.51 J	**12**	**4.5**	< 2.0 U
	10/22/2008	2.7	11	< 1.0 U	< 1.0 U	5.2	< 1.0 U	**7.7**	< 1.0 U	0.25 J	**9**	1.7	< 2.0 U
	9/27/2013	5.9	20	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**5.1**	< 1.0 U	< 1.0 U	2.8	0.28 J	< 2.0 U
RMW-89	1/15/2016	0.99 J	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	**46**	< 1.0 U	< 1.0 U	**22**	< 1.0 U	< 2.0 U
	8/24/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	4.4	< 2.0 U	**61**	< 2.0 U	< 2.0 U	**21**	< 2.0 U	< 4.0 U
RMW-90	1/15/2016	7.1	8.7	0.49 J	< 1.0 U	38	< 1.0 U	0.86 J	< 1.0 U	1.0	**29**	1.0	< 2.0 U
	8/17/2016	12	8.4	0.96 J	< 1.0 U	31	< 1.0 U	1.5	< 1.0 U	0.99 J	**55**	0.81 J	< 2.0 U
RMW-91	7/11/2019	1.8 J	2.5 J	< 5.0 U	< 5.0 U	25	< 5.0 U	**130**	< 5.0 U	2.3 J	**62**	< 5.0 U	< 10 U
	2/14/2020	2.8	1.8	< 1.0 U	< 1.0 U	12	< 1.0 U	**100**	< 1.0 U	1.1	**59**	< 1.0 U	< 2.0 U
	7/28/2020	1.8 J	< 5.0 U	< 5.0 U	< 5.0 U	8.9	< 5.0 U	**83**	< 5.0 U	< 5.0 U	**53**	< 5.0 U	< 10 U
RMW-92	7/11/2019	1.6	0.55 J	< 1.0 U	< 1.0 U	0.83 J	< 1.0 U	**57**	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	2/14/2020	1.4 J	0.56 J	< 2.0 U	< 2.0 U	0.84 J	< 2.0 U	**54**	< 2.0 U	< 2.0 U	1.0 J	< 2.0 U	< 4.0 U
	7/28/2020	1.3 J	< 2.0 U	< 2.0 U	< 2.0 U	0.79 J	< 2.0 U	**50**	< 2.0 U	< 2.0 U	0.96 J	< 2.0 U	< 4.0 U
RMW-93	7/11/2019	2.0 J	0.66 J	< 2.5 U	< 2.5 U	1.7 J	< 2.5 U	**90**	< 2.5 U	< 2.5 U	**7.2**	< 2.5 U	< 5.0 U
	2/13/2020	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**50**	< 2.0 U	< 2.0 U	3.7	< 2.0 U	< 4.0 U
	7/28/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**22**	< 1.0 U	< 1.0 U	0.86 J	< 1.0 U	< 2.0 U
RMW-94	7/11/2019	1.2 J	0.39 J	< 1.7 U	< 1.7 U	0.40 J	< 1.7 U	**58**	< 1.7 U	< 1.7 U	0.71 J	< 1.7 U	< 3.3 U
	2/13/2020	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**38**	< 2.0 U	< 2.0 U	0.39 J	< 2.0 U	< 4.0 U
	7/28/2020	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	**27**	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 3.3 U
RZ-1A	9/29/1999	5.7	1.8	< 1.0 U	< 1.0 U	68.6	< 1.0 U	**252**	< 1.0 U	3.6	**158**	**3.3**	< 1.0 U
RZ-1G	9/29/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	14.8	< 1.0 U	**91.5**	< 1.0 U	< 1.0 U	**44.1**	< 1.0 U	< 1.0 U
RZ-3E	9/30/1999	28.4	20.9	1.6	< 1.0 U	**112**	< 1.0 U	**58.2**	< 1.0 U	2.0	**124**	**2.7**	< 1.0 U
RZ-3L	9/30/1999	2.4	59.7	< 1.0 U	**8.2**	**96.6**	22.1	< 1.0 U	124	2.0	**18.2**	**14.1**	182.4
RZ-3PP	10/8/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	1.3	< 1.0 U	**14.7**	< 1.0 U	< 1.0 U
RZ-3T	9/30/1999	7.2	4.9	< 1.0 U	< 1.0 U	23.8	< 1.0 U	**19.8**	< 1.0 U	< 1.0 U	**97.3**	< 1.0 U	< 1.0 U
RZ-3Z	9/29/1999	3.8	1.5	< 1.0 U	< 1.0 U	3.2	< 1.0 U	**20.6**	< 1.0 U	< 1.0 U	**33.9**	< 1.0 U	< 1.0 U
RZ-4B	8/3/2006	6.1	3.7 J	< 4.0 U	< 4.0 U	11	< 4.0 U	**89**	< 4.0 U	1.1 J	**93**	< 4.0 U	< 8.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
RZ-4O	8/3/2006	3.8 J	2.6 J	< 4.0 U	< 4.0 U	13	< 4.0 U	**110**	< 4.0 U	1.6 J	**82**	< 4.0 U	< 8.0 U
W-1-N	9/17/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/19/2002	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/27/2013	< 1.0 U	1.6	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/8/2014	< 1.0 U	1.8	< 1.0 U	< 1.0 U	0.21 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	11/4/2015	< 1.0 U	4.2	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.25 J	< 1.0 U	< 2.0 U
	8/18/2016	< 1.0 U	4.8	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
W-2-N	9/14/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/6/2001	0.48 J	0.33 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.3	< 1.0 U	< 1.0 U
	9/19/2002	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.4	< 1.0 U	< 1.0 U
	9/18/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/16/2004	0.30 J	0.36 J	< 1.0 U	< 1.0 U	1.8	< 1.0 U	0.31 J	< 1.0 U	0.20 J	1.4	< 1.0 U	< 1.0 U
	10/20/2005	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	< 1.0 U	< 2.0 U
	9/22/2006	0.25 J	0.29 J	< 1.0 UJ	< 1.0 U	1.4 J	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	0.18 J	1 J	< 1.0 UJ	< 2.0 UJ
	9/25/2007	< 1.0 U	0.22 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	0.88 J	< 1.0 U	< 2.0 U
	9/29/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.47 J	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	< 1.0 U	< 2.0 U
	9/24/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.20 J	< 1.0 U	< 2.0 U
	10/30/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.25 J	< 1.0 U	< 2.0 U
	8/15/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
	8/15/2017	0.28 J	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 2.0 U
	7/24/2018	0.38 J	0.31 J	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	1.9	< 1.0 U	< 2.0 U
	7/9/2019	< 1.0 U	0.19 J	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	0.22 J	1.1	< 1.0 U	< 2.0 U
	7/29/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.79 J	< 1.0 U	< 2.0 U
W-3-N	9/17/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**291**	< 1.0 U	2.5	< 1.0 U	2.6	< 1.0 U	**13**	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**282**	< 1.0 U	< 1.0 U	< 1.0 U	3.9	< 1.0 U	**24**	< 1.0 U
	11/7/2001	< 5.6 U	< 5.6 U	< 5.6 U	< 5.6 U	**160**	< 5.6 U	**9.0**	< 5.6 U	2.2 J	2.1 J	**7.6**	< 5.6 U
	9/23/2002	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	**150**	< 6.7 U	< 6.7 U	< 6.7 U	< 3.3 U	< 6.7 U	**6.5 J**	< 6.7 U
	9/17/2003	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**100**	< 4.0 U	**5.1**	< 4.0 U	1.6 J	1.7 J	**6.6**	< 4.0 U
	9/16/2004	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**120**	< 4.0 U	0.94 J	< 4.0 U	1.6 J	< 4.0 U	**6.1**	< 4.0 U
	10/20/2005	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**84**	< 4.0 U	1.4 J	< 4.0 U	1.0 J	< 4.0 U	**8.0**	< 8.0 U
	9/25/2006	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**140**	< 5.0 U	< 5.0 U	< 5.0 U	1.9 J	< 5.0 U	**9.6**	< 1.0 U
	9/26/2007	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**110**	< 4.0 U	< 4.0 U	< 4.0 U	1.4 J	< 4.0 U	**5.6**	< 8.0 U
	9/29/2008	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**98**	< 3.3 U	< 3.3 U	< 3.3 U	1.4 J	< 3.3 U	**3.8**	< 6.7 U
	11/13/2009	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**72**	< 2.0 U	< 2.0 U	< 2.0 U	0.99 J	< 2.0 U	**3.2**	< 4.0 U
	9/24/2010	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	56	< 2.0 U	< 2.0 U	< 2.0 U	0.79 J	< 2.0 U	**2.4**	< 4.0 U
	9/28/2011	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	53	< 2.5 U	0.94 J	< 2.5 U	0.80 J	< 2.5 U	**2.7**	< 5.0 U
	9/6/2012	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	41	< 2.0 U	0.60 J	< 2.0 U	0.79 J	< 2.0 U	1.4 J	< 4.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	34	< 1.0 U	0.96 J	< 1.0 U	0.64 J	< 1.0 U	1.6	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	31	< 1.0 U	0.52 J	< 1.0 U	0.47 J	< 1.0 U	1.0	< 2.0 U
	11/4/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	29	< 1.0 U	< 1.0 U	< 1.0 U	0.42 J	< 1.0 U	1.3	< 2.0 U
	8/19/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	22	< 1.0 U	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	1.9	< 2.0 U
	8/15/2017	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	24	< 1.0 U	< 1.0 U	< 1.0 U	0.38 J	< 1.0 U	1.4	< 2.0 U
	7/24/2018	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	16	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	1.1	< 2.0 U
	7/9/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	0.81 J	< 2.0 U
	7/29/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	13	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.88 J	< 2.0 U
W-4-N	9/17/1999	< 1.0 U	1.3	< 1.0 U	< 1.0 U	2.2	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**9.8**	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.3**	< 1.0 U	< 1.0 U
	11/7/2001	0.33 J	0.89 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	0.92 J	< 1.0 U	< 0.50 U	**7.1**	< 1.0 U	< 1.0 U
	9/24/2002	0.44 J	1.7	< 1.0 U	< 1.0 U	5.2	< 1.0 U	0.94 J	< 1.0 U	0.33 J	**8.5**	0.77 J	< 1.0 U
	9/17/2003	0.26 J	0.94 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	1.1	< 1.0 U	< 0.50 U	**8.1**	0.48 J	< 1.0 U
	9/16/2004	0.40 J	1.7	< 1.0 U	< 1.0 U	5.8	< 1.0 U	1.7	< 1.0 U	0.38 J	**12**	0.49 J	< 1.0 U
	10/20/2005	< 1.0 U	1.2	< 1.0 U	< 1.0 U	2.0	< 1.0 U	1.0	< 1.0 U	< 1.0 U	**7.2**	0.54 J	< 2.0 U
	9/25/2006	< 1.0 U	1.3	< 1.0 U	< 1.0 U	2.4	< 1.0 U	0.96 J	< 1.0 U	0.19 J	**7.6**	0.56 J	< 2.0 U
	9/26/2007	0.34 J	1.6	< 1.0 U	< 1.0 U	2.6	< 1.0 U	0.88 J	< 1.0 U	0.24 J	**10**	0.96 J	< 2.0 U
	9/29/2008	0.39 J	1.9	< 1.0 U	< 1.0 U	11	< 1.0 U	0.38 J	< 1.0 U	0.92 J	**8.4**	0.34 J	< 2.0 U
	11/13/2009	0.47 J	1.6	< 1.0 U	< 1.0 U	5.7	< 1.0 U	0.68 J	< 1.0 U	0.39 J	**15**	0.25 J	< 2.0 U
	9/24/2010	0.41 J	2.1	< 1.0 U	< 1.0 U	7.9	< 1.0 U	0.67 J	< 1.0 U	0.51 J	**13**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	2.4	< 1.0 U	< 1.0 U	9.7	< 1.0 U	1.1	< 1.0 U	0.59 J	**9.9**	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	5.6	< 1.0 U	< 1.0 U	14	< 1.0 U	0.52 J	< 1.0 U	1.2	**6.3**	< 1.0 U	< 2.0 U
	9/27/2013	< 1.0 U	7.1	< 1.0 U	< 1.0 U	11	< 1.0 U	0.63 J	< 1.0 U	0.76 J	**7.4**	0.18 J	< 2.0 U
	10/7/2014	< 1.0 U	5.7	< 1.0 U	< 1.0 U	11	< 1.0 U	0.49 J	< 1.0 U	0.69 J	**9.2**	< 1.0 U	< 2.0 U
	11/4/2015	< 1.0 U	4.2	< 1.0 U	< 1.0 U	7.0	< 1.0 U	< 1.0 U	< 1.0 U	0.51 J	**12**	< 1.0 U	< 2.0 U
	8/19/2016	< 1.0 U	4.6	< 1.0 U	< 1.0 U	9.5	< 1.0 U	< 1.0 U	< 1.0 U	0.63 J	**10**	< 1.0 U	< 2.0 U
	8/16/2017	< 1.0 U	6.5	< 1.0 U	< 1.0 U	9.2	< 1.0 U	0.38 J	< 1.0 U	0.64 J	**8.8**	< 1.0 U	< 2.0 U
	7/24/2018	< 1.0 U	6.9	< 1.0 U	< 1.0 U	8.7	< 1.0 U	0.26 J	< 1.0 U	1.3	**6.1**	< 1.0 U	< 2.0 U
	7/9/2019	< 1.0 U	7.6	< 1.0 U	< 1.0 U	6.6	< 1.0 U	0.72 J	< 1.0 U	0.88 J	**9.2**	< 1.0 U	< 2.0 U
	7/29/2020	< 1.0 U	7.3	< 1.0 U	< 1.0 U	8.2	< 1.0 U	0.81 J	< 1.0 U	0.55 J	**6.9**	< 1.0 U	< 2.0 U
W-1-S	9/22/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	8.0	< 1.0 U	**31**	< 1.0 U	1.1	**11.6**	< 1.0 U	< 1.0 U
	9/19/2002	< 2.0 U	0.97 J	< 2.0 U	< 2.0 U	6.0	< 2.0 U	**62**	< 2.0 U	1.3	**16**	< 2.0 U	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
W-2-S	9/23/1999	1.9 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.1**	< 1.0 U	< 1.0 U
	9/27/2000	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 1.0 U
	11/8/2001	1.7	0.58 J	< 1.0 U	< 1.0 U	0.49 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**5.2 B**	< 1.0 U	< 1.0 U
	9/18/2002	1.5	0.98 J	< 1.0 U	< 1.0 U	0.90	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	4.9	< 1.0 U	< 1.0 U
	9/26/2003	1.4	0.99 J	< 1.0 U	< 1.0 U	0.74	< 1.0 U	< 1.0 U	0.25 J	< 0.50 U	**5.5**	< 1.0 U	< 1.0 U
	9/17/2004	1.5	1.3	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.55 J	< 1.0 U	< 0.50 U	**6.0**	< 1.0 U	< 1.0 U
	10/19/2005	1.6	1.2	< 1.0 U	< 1.0 U	0.78 J	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	**5.4**	< 1.0 U	< 2.0 U
	9/18/2006	1.8	1.2	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.1**	< 1.0 U	< 2.0 U
	9/24/2007	1.4	1.1	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.3**	< 1.0 U	< 2.0 U
	9/25/2008	1.4	0.92 J	< 1.0 U	< 1.0 U	0.78 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.2**	< 1.0 U	< 2.0 U
	11/12/2009	1.7	1.2	< 1.0 U	0.43 J	0.90 J	< 1.0 UJ	0.35 J	< 1.0 U	< 1.0 U	**6.6**	< 1.0 U	< 2.0 U
	9/24/2010	1.4	1.1	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	0.33 J	< 1.0 U	< 1.0 U	**5.9**	< 1.0 U	< 2.0 U
	9/29/2011	1.6	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	**7.1**	< 1.0 U	< 2.0 U
	9/6/2012	1.6	1.1	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.35 J	< 1.0 U	< 1.0 U	**6.1**	< 1.0 U	< 2.0 U
	9/25/2013	1.8	0.86 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	**6.4**	< 1.0 U	< 2.0 U
	10/7/2014	0.79 J	0.80 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	0.33 J	< 1.0 U	0.34 J	5.0	< 1.0 U	< 2.0 U
	11/5/2015	< 1.0 U	0.63 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.36 J	< 1.0 U	0.47 J	23	< 1.0 U	< 2.0 U
	8/23/2016	1.4	1.0	< 1.0 U	< 1.0 U	1.9	< 1.0 U	0.34 J	< 1.0 U	0.30 J	**6.6**	< 1.0 U	< 2.0 U
	8/16/2017	1.3	1.1	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	0.40 J	**5.9**	< 1.0 U	< 2.0 U
	7/25/2018	0.98 J	0.83 J	< 1.0 U	< 1.0 U	2.2	< 1.0 U	2.0	< 1.0 U	0.32 J	4.6	< 1.0 U	< 2.0 U
	7/9/2019	0.60 J	0.23 J	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	**20**	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 2.0 U
	2/12/2020	1.3	0.79 J	< 1.0 U	< 1.0 U	1.2	< 1.0 U	1.0	< 1.0 U	0.25 J	**5.9**	< 1.0 U	< 2.0 U
	7/29/2020	0.85 J	0.60 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**6.3**	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 2.0 U
W-3-S	9/23/1999	3.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	2.6	< 1.0 U	< 1.0 U
	9/28/2000	2.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U
	11/8/2001	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.44 J	< 1.0 U	< 0.50 U	1.5 B	< 1.0 U	< 1.0 U
	9/18/2002	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.61 J	< 1.0 U	< 0.50 U	2.4	< 1.0 U	< 1.0 U
	9/26/2003	1.8	< 1.0 U	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	0.81 J	< 1.0 U	< 0.50 U	2.0	< 1.0 U	< 1.0 U
	9/17/2004	2.4	0.21 J	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.2	< 1.0 U	< 0.50 U	2.9	< 1.0 U	< 1.0 U
	10/19/2005	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 2.0 U
	9/18/2006	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.60 J	< 1.0 U	< 1.0 U	3.4	< 1.0 U	< 2.0 U
	9/24/2007	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
	9/26/2008	1.2	0.21 J	< 1.0 U	< 1.0 U	0.52 J	< 1.0 U	1.3	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 2.0 U
	11/12/2009	1.2	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 UJ	0.87 J	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 2.0 U
	9/23/2010	0.87 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.95 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 2.0 U
	9/29/2011	0.51 J	0.38 J	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	2.8	< 1.0 U	0.19 J	2.6	< 1.0 U	< 2.0 U
	9/6/2012	0.60 J	0.89 J	< 1.0 U	< 1.0 U	1.0	< 1.0 U	4.4	< 1.0 U	0.49 J	**5.7**	< 1.0 U	< 2.0 U
	9/25/2013	0.49 J	1.2	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**25**	< 1.0 U	0.59 J	**21**	< 1.0 U	< 2.0 U
	10/7/2014	0.76 J	0.96 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	**38**	< 1.0 U	0.59 J	**35**	< 1.0 U	< 2.0 U
	11/4/2015	< 1.0 U	0.41 J	< 1.0 U	< 1.0 U	2.6	< 1.0 U	**65**	< 1.0 U	0.31 J	**97**	< 1.0 U	< 2.0 U
	8/23/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	2.1	< 2.0 U	**62**	< 2.0 U	< 2.0 U	**11**	< 2.0 U	< 4.0 U
	8/16/2017	0.62 J	0.66 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	**68**	< 1.0 U	< 1.0 U	**7.6**	< 1.0 U	< 2.0 U
	7/25/2018	0.87 J	0.61 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**19**	< 1.0 U	0.19 J	**27**	< 1.0 U	< 2.0 U
	7/9/2019	2.5	0.83 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**81**	< 1.0 U	< 1.0 U	**5.6**	< 1.0 U	< 2.0 U
	2/13/2020	1.9	0.28 J	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**140**	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	7/29/2020	1.6	0.48 J	< 1.0 U	< 1.0 U	1.9	< 1.0 U	**110**	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
W-4-S	9/23/1999	3.3	1.2	< 1.0 U	< 1.0 U	4.4	< 1.0 U	**31 J**	< 1.0 U	< 1.0 U	**15 J**	< 1.0 U	< 1.0 U
	9/28/2000	3.0	1.0	< 1.0 U	< 1.0 U	4.0	< 1.0 U	**15**	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U
	11/8/2001	2.9	1.1	< 1.0 U	< 1.0 U	3.3	< 1.0 U	**13**	< 1.0 U	0.43 J	**8.9 B**	< 1.0 U	< 1.0 U
	9/18/2002	2.3	0.87 J	< 1.0 U	< 1.0 U	3.6	< 1.0 U	**17**	< 1.0 U	0.60	**9.8**	< 1.0 U	< 1.0 U
	9/26/2003	2.0	0.92 J	< 1.0 U	< 1.0 U	3.6	< 1.0 U	**24**	0.25 J	0.78	**13**	< 1.0 U	< 1.0 U
	9/17/2004	2.3	1.2	< 1.0 U	< 1.0 U	4.4	< 1.0 U	**18**	< 1.0 U	0.97	**13**	< 1.0 U	< 1.0 U
	10/19/2005	2.4	1.4	< 1.0 U	< 1.0 U	4.3	< 1.0 U	**20**	< 1.0 U	1.1	**13**	< 1.0 U	< 2.0 U
	9/19/2006	1.7	1.3	< 1.0 U	< 1.0 U	4.3	< 1.0 U	**18**	< 1.0 U	1.0	**12**	< 1.0 U	< 2.0 U
	9/24/2007	1.5	1.8	< 1.0 U	< 1.0 U	5.9	< 1.0 U	**26**	< 1.0 U	1.3	**16**	< 1.0 U	< 2.0 U
	9/26/2008	0.95 J	1.3	0.21 J	< 1.0 U	6	< 1.0 U	**32**	< 1.0 U	1.2	**16**	< 1.0 U	< 2.0 U
	11/12/2009	1.3	1.6	< 1.0 U	< 1.0 U	9.1	< 1.0 U	**39**	< 1.0 U	1.5	**23**	< 1.0 U	< 2.0 U
	9/23/2010	1.1	1.6	< 1.0 U	< 1.0 U	9.1	< 1.0 U	**31**	< 1.0 U	1.5	**20**	< 1.0 U	< 2.0 U
	9/29/2011	1.1	1.5	< 1.0 U	< 1.0 U	8.9	< 1.0 U	**31**	< 1.0 U	1.4	**21**	< 1.0 U	< 2.0 U
	9/6/2012	1.0 J	1.6 J	< 1.0 U	< 1.0 U	9.4	< 1.0 U	**26**	< 1.0 U	1.4 J	**21**	< 1.0 U	< 3.3 U
	9/25/2013	1.6	1.9	< 1.0 U	< 1.0 U	6.3	< 1.0 U	**60**	< 1.0 U	1.2	**50**	< 1.0 U	< 2.0 U
	10/7/2014	1.4 J	1.3 J	< 2.5 U	< 2.5 U	6.1	< 2.5 U	**65**	< 2.5 U	1.1 J	**63**	< 2.5 U	< 5.0 U
	11/4/2015	1.9 J	2.3	< 2.0 U	< 2.0 U	9.7	< 2.0 U	**74**	< 2.0 U	1.4 J	**72**	< 2.0 U	< 4.0 U
	8/23/2016	1.6 J	1.7 J	< 2.0 U	< 2.0 U	12	< 2.0 U	**54**	< 2.0 U	1.1 J	**45**	< 2.0 U	< 4.0 U
	8/16/2017	1.5	2.7	< 1.0 U	< 1.0 U	22	< 1.0 U	**39**	< 1.0 U	2.1	**40**	< 1.0 U	< 2.0 U
	7/25/2018	1.8	2.1	< 1.0 U	< 1.0 U	17	< 1.0 U	**68**	< 1.0 U	1.5	**42**	< 1.0 U	< 2.0 U
	7/9/2019	1.7	1.6	< 1.0 U	< 1.0 U	13	< 1.0 U	**70**	< 1.0 U	1.2	**33**	< 1.0 U	< 2.0 U
	2/13/2020	1.7 J	0.72 J	< 2.0 U	< 2.0 U	9.4	< 2.0 U	**43**	< 2.0 U	0.79 J	**48**	< 2.0 U	< 4.0 U
	7/29/2020	0.71 J	< 2.0 U	< 2.0 U	< 2.0 U	1.0 J	< 2.0 U	**37**	< 2.0 U	< 2.0 U	**9.1**	< 2.0 U	< 4.0 U
EAST	9/21/1999	21	5.4	< 1.0 U	< 1.0 U	9.1	< 1.0 U	**61**	< 1.0 U	< 1.0 U	**56**	< 1.0 U	< 1.0 U
	9/22/2000	22	7.7	1.2	< 1.0 U	**77**	< 1.0 U	**56**	< 1.0 U	1.8	**97**	**3.0**	< 1.0 U
	11/12/2001	13	6.2	0.90 J	< 3.3 U	51	< 3.3 U	**56**	< 3.3 U	2.7	**92**	1.5 J	< 3.3 U
	9/23/2002	10	3.9	0.73 J	< 2.0 U	8.8	< 2.0 U	**49**	< 2.0 U	< 1.0 U	**46**	< 2.0 U	< 2.0 U
	9/25/2003	7.1	2.3	< 2.0 U	< 2.0 U	4.3	< 2.0 U	**47**	< 2.0 U	< 1.0 U	**35**	< 2.0 U	< 2.0 U
	9/13/2004	5.7	0.72 J	0.34 J	< 1.0 U	1.6	< 1.0 U	**40**	< 1.0 U	< 0.50 U	**23**	< 1.0 U	< 1.0 U
	10/18/2005	5.9	3.0	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**47**	< 1.0 U	< 1.0 U	**23**	1.2	< 2.0 U
	9/21/2006	10	3.2	0.59 J	< 1.0 U	4.1	< 1.0 U	**41**	< 1.0 U	< 1.0 U	**29**	< 1.0 U	< 2.9 U
	7/30/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
WEST	9/21/1999	24.8	25.6	< 1.0 U	< 1.0 U	**125**	< 1.0 U	**41**	< 1.0 U	< 1.0 U	**37**	< 1.0 U	< 1.0 U
	7/30/2020	< 1.0 U	1.7	< 1.0 U	< 1.0 U	6.0	< 1.0 U	**13**	< 1.0 U	< 1.0 U	4.4	0.98 J	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
Downgradient of the Site													
4S	9/20/1999	< 1.0 U	1.6	< 1.0 U	1.6	< 1.0 U	<10	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U
	10/2/2003	< 2.0 U	7.0	< 2.0 U	1.6 J	< 1.0 U	1.7 J	< 2.0 U	< 2.0 U	1.7	< 2.0 U	< 2.0 U	< 2.0 U
	9/14/2004	< 5.0 U	7.5	< 5.0 U	4.5 J	< 2.5 U	4.7 J	< 5.0 U	1.1 J	< 2.5 U	< 5.0 U	< 5.0 U	2.4 J
	10/19/2005	< 4.0 U	2.3 J	< 4.0 U	1.6 J	< 4.0 U	1.6 J	< 4.0 U	< 4.0 U	0.95 J	< 4.0 U	< 4.0 U	< 8.0 U
	9/20/2006	< 1.0 U	5.6	< 1.0 U	0.7 J	0.25 J	0.52 J	< 1.0 U	< 1.0 U	0.75 J	< 1.0 U	< 1.0 U	< 2.0 U
GM-2	9/20/1999	5.5	1.4	< 1.0 U	< 1.0 U	8.4	<10	**6.0**	< 1.0 U	< 1.0 U	**62**	< 1.0 U	< 10 U
	9/25/2000	5.7	3.7	< 1.0 U	< 1.0 U	39	< 1.0 U	**7.7**	< 1.0 U	1.3	**83**	1.7	< 1.0 U
	11/9/2001	6.1	6.1	< 3.3 U	< 3.3 U	26	< 3.3 U	**8.4**	< 3.3 U	1.1J	**65**	< 3.3 U	< 3.3 U
	9/20/2002	0.75 J	3.4	< 1.0 U	< 1.0 U	7.6	< 1.0 U	**8.7**	< 1.0 U	0.37J	**26**	< 1.0 U	< 1.0 U
	10/2/2003	0.21 J	1.7	< 1.0 U	< 1.0 U	4.7	0.21 J	**5.7**	< 1.0 U	< 0.50 U	**13**	0.46 J	< 1.0 U
	9/14/2004	< 1.0 U	1.6	< 1.0 U	< 1.0 U	5.6	< 1.0 U	4.0	< 1.0 U	0.23 J	**6.2**	< 1.0 U	< 1.0 U
	10/19/2005	< 1.0 U	2.0	< 1.0 U	< 1.0 U	6.8	< 1.0 U	3.6	< 1.0 U	0.26 J	4.6	0.24 J	< 2.0 U
	9/20/2006	< 1.0 U	2.1	< 1.0 U	< 1.0 U	7.7	< 1.0 U	2.6	< 1.0 U	0.34 J	**5.1**	0.61 J	< 2.0 U
	9/18/2007	< 1.0 U	1.4	< 1.0 U	< 1.0 U	4.9	< 1.0 U	1.6	< 1.0 U	0.28 J	2.3	1.1	< 2.0 U
	9/24/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.7	< 1.0 U	1.3	< 1.0 U	0.19 J	2.4	< 1.0 U	< 2.0 U
	11/11/2009	< 1.0 U	1.0	< 1.0 U	< 1.0 U	3.2	< 1.0 U	0.90 J	< 1.0 U	< 1.0 U	1.4	**2.3**	< 2.0 U
	9/27/2010	< 1.0 U	1.2	< 1.0 U	< 1.0 U	3.8	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	0.95 J	**2.5**	< 2.0 U
	9/29/2011	< 1.0 U	0.92 J	< 1.0 U	< 1.0 U	9.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	0.69 J	< 2.0 U
	9/6/2012	< 1.0 U	0.71 J	< 1.0 U	< 1.0 U	15	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	0.96 J	1.2	< 2.0 U
	9/25/2013	< 1.0 U	1.0	< 1.0 U	< 1.0 U	13	< 1.0 U	0.31 J	< 1.0 U	0.26 J	0.70 J	1.3	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 2.0 U
	12/8/2015	< 1.0 U	0.40 J	< 1.0 U	< 1.0 U	3.2	< 1.0 U	3.6	< 1.0 U	< 1.0 U	**6.7**	< 1.0 U	< 2.0 U
	8/19/2016	< 1.0 U	0.43 J	< 1.0 U	< 1.0 U	8.9	< 1.0 U	**8.5**	< 1.0 U	< 1.0 U	**6.3**	< 1.0 U	< 2.0 U
	7/12/2019	0.33 J	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	**28**	< 1.0 U	< 1.0 U	**7.4**	< 1.0 U	< 2.0 U
	7/31/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**30**	< 1.0 U	< 1.0 U	3.9	< 1.0 U*	< 2.0 U
GM-10	9/21/1999	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 1.0 U
	9/27/2000	2.5	1.4	< 1.0 U	< 1.0 U	5.7	< 1.0 U	1.4	< 1.0 U	< 1.0 U	**23**	< 1.0 U	< 1.0 U
	11/8/2001	2.7	3.4	< 1.0 U	< 1.0 U	16	< 1.0 U	1.9	< 1.0 U	0.93	**27**	1.2	< 1.0 U
	9/18/2002	1.8	0.61 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	1.1	< 1.0 U	< 0.50 U	**19**	< 1.0 U	< 1.0 U
	9/24/2003	0.96 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.2	< 1.0 U	< 0.50 U	**33**	< 1.0 U	< 1.0 U
	9/14/2004	1.2	< 1.0 U	< 1.0 U	< 1.0 U	0.38 J	< 1.0 U	1.5	< 1.0 U	< 0.50 U	**15**	< 1.0 U	< 1.0 U
	10/20/2005	1.6	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
	9/27/2006	0.90 J	0.29 J	< 1.0 U	< 1.0 U	0.77 J	< 1.0 U	0.98 J	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 2.0 U
	9/19/2007	0.75 J	< 1.0 U	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	0.93 J	< 1.0 U	< 1.0 U	**8.8**	< 1.0 U	< 2.0 U
	9/24/2008	0.53 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.85 J	< 1.0 U	< 1.0 U	**5.9**	< 1.0 U	< 2.0 U
	9/25/2013	0.20 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	3.1	< 1.0 U	< 2.0 U
	10/6/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	3.1	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.85 J	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 2.0 U
GM-16	9/21/1999	2.2	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**44**	< 1.0 U	< 1.0 U	**8.5**	< 1.0 U	< 1.0 U
	9/26/2000	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**16**	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U
	11/8/2001	2.2	0.31 J	< 1.0 U	< 1.0 U	0.39 J	< 1.0 U	**17**	< 1.0 U	< 0.50 U	3.6	< 1.0 U	< 1.0 U
	9/24/2002	1.4 J	4.1	< 2.0 U	< 2.0 U	6.2	< 2.0 U	**63**	< 2.0 U	1.6	**28**	< 2.0 U	< 2.0 U
	9/22/2003	1.9 J	2.8 J	< 4.0 U	< 4.0 U	5.8	< 4.0 U	**110**	< 4.0 U	1.1 J	**57**	< 4.0 U	< 4.0 U
	9/16/2004	3.1 J	4.3	< 3.3 U	< 3.3 U	7.4	< 3.3 U	**130**	< 3.3 U	1.0 J	**90**	< 3.3 U	< 3.3 U
	10/19/2005	1.7 J	1.1 J	< 3.3 U	< 3.3 U	2.8 J	< 3.3 U	**100**	< 3.3 U	0.90 J	**55**	< 3.3 U	< 6.7 U
	9/18/2006	2.1	1.1 J	< 1.0 U	< 1.0 U	3.8	< 1.0 U	**98**	< 1.0 U	1 J	**51**	< 1.0 U	< 2.9 U
	9/25/2007	1.4 J	1.5 J	< 4.0 U	< 4.0 U	43	< 4.0 U	**94**	< 4.0 U	1.3 J	**52**	< 4.0 U	< 8.0 U
	9/30/2008	1.8 J	3.8	< 3.3 U	< 3.3 U	20	< 3.3 U	**100**	< 3.3 U	1.1 J	**48**	< 3.3 U	< 6.7 U
	11/16/2009	1.4 J	1.6 J	< 3.3 U	< 3.3 U	12	< 3.3 U	**110**	< 3.3 U	1.5 J	**74**	< 3.3 U	< 6.7 U
	9/23/2010	1.1 J	1.3 J	< 4.0 U	< 4.0 U	2.2 J	< 4.0 U	**110**	< 4.0 U	1.2 J	**75**	< 4.0 U	< 8.0 U
	9/29/2011	< 3.3 U	5.5	< 3.3 U	< 3.3 U	23	< 3.3 U	**64**	< 3.3 U	0.77 J	**45**	1.2 J	< 6.7 U
	9/5/2012	0.94 J	3.8 J	< 4.0 U	< 4.0 U	12	< 4.0 U	**66**	< 4.0 U	< 4.0 U	**41**	< 4.0 U	< 8.0 U
	9/25/2013	0.36 J	4.4	< 1.0 U	< 1.0 U	12	< 1.0 U	**51**	< 1.0 U	0.40 J	**17**	0.55 J	< 2.0 U
	10/7/2014	< 1.0 U	1.4	< 1.0 U	< 1.0 U	7.7	< 1.0 U	**31**	< 1.0 U	0.26 J	**7.5**	0.97 J	< 2.0 U
	11/4/2015	< 1.0 U	1.5	< 1.0 U	< 1.0 U	12	< 1.0 U	**35**	< 1.0 U	0.34 J	**8.3**	10	< 2.0 U
	8/18/2016	< 1.0 U	1.8	< 1.0 U	< 1.0 U	7.4	< 1.0 U	**23**	< 1.0 U	< 1.0 U	**5.7**	0.31 J	< 2.0 U
	7/8/2019	< 1.0 U	0.54 J	< 1.0 U	< 1.0 U	5.6	< 1.0 U	**13**	< 1.0 U	< 1.0 U	3.0	0.45 J	< 2.0 U
	2/11/2020	< 1.0 U	2.3	< 1.0 U	< 1.0 U	6.2	< 1.0 U	**10**	< 1.0 U	< 1.0 U	3.1	0.52 J	< 2.0 U
	7/28/2020	< 1.0 U	0.45 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**12**	< 1.0 U	< 1.0 U	3.0	< 1.0 U	< 2.0 U
GM-17	9/21/1999	6.4	26	< 1.0 U	< 1.0 U	30	< 1.0 U	< 1.0 U	< 1.0 U	2.6	**29**	1.4	< 1.0 U
	9/27/2000	6.7	24	< 1.0 U	< 1.0 U	42	< 1.0 U	**25**	< 1.0 U	2.5	**48**	< 1.0 U	< 1.0 U
	11/8/2001	6.8	7.3	< 3.3 U	< 3.3 U	16	< 3.3 U	**48**	< 3.3 U	1.8	**79**	< 3.3 U	< 3.3 U
	9/19/2002	2.3	6.0	< 1.0 U	< 1.0 U	13	< 1.0 U	**22**	< 1.0 U	0.67	**39**	0.79 J	< 1.0 U
	9/24/2003	1.3	1.2	< 1.0 U	< 1.0 U	2.9	< 1.0 U	**12**	< 1.0 U	< 0.50 U	**24**	< 1.0 U	< 1.0 U
	9/15/2004	1.1	4	< 1.0 U	< 1.0 U	11	< 1.0 U	3.6	< 1.0 U	0.64	**22**	0.49 J	< 1.0 U
	10/20/2005	1.4	5.5	< 1.0 U	< 1.0 U	9.0	< 1.0 U	**8.1**	< 1.0 U	0.57 J	**29**	2.0	< 2.0 U
	9/27/2006	0.46 J	3.2	< 1.0 U	< 1.0 U	9.5	< 1.0 U	**11**	< 1.0 U	0.49 J	**24**	0.54 J	< 2.0 U
	9/18/2007	0.31 J	1.5	< 1.0 U	< 1.0 U	4.0	< 1.0 U	**7.3**	< 1.0 U	0.22 J	**15**	< 1.0 U	< 2.0 U
	9/24/2008	0.29 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.8	< 1.0 U	< 1.0 U	**10**	< 1.0 U	< 2.0 U
	9/27/2013	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	2.6	< 1.0 U	2.8	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-18	9/22/1999	43	23	1.3	< 1.0 U	35	< 1.0 U	4.9	< 1.0 U	2.2	**131**	< 1.0 U	< 1.0 U
	9/27/2000	32	10	< 1.0 U	< 1.0 U	24	< 1.0 U	**7.8**	< 1.0 U	1.8	**115**	< 1.0 U	< 1.0 U
	11/8/2001	23	3.3	1.3J	< 3.3 U	14	< 3.3 U	**12**	< 3.3 U	1.6 J	**93**	< 3.3 U	< 3.3 U
	9/19/2002	18	6.0	< 3.3 U	< 3.3 U	15	< 3.3 U	**28**	< 3.3 U	1.6 J	**98**	< 3.3 U	< 3.3 U
	9/22/2003	10	3.7	< 2.0 U	< 2.0 U	8.8	< 2.0 U	**24**	< 2.0 U	< 1.0 U	**77**	0.75 J	< 2.0 U
	9/15/2004	5.2	2.2	0.46 J	< 2.0 U	5.9	< 2.0 U	**20**	< 2.0 U	< 1.0 U	**53**	< 2.0 U	< 2.0 U
	10/20/2005	7.0	15	0.30 J	< 1.0 U	14	< 1.0 U	**21**	< 1.0 U	1.2	**70 J**	**3.0**	< 2.0 U
	9/27/2006	6.2	17	< 2.9 U	< 2.9 U	21	< 2.9 U	**15**	< 2.9 U	2 J	**72**	**2.5 J**	< 5.7 U
	9/19/2007	5.4	13	< 2.5 U	< 2.5 U	19	< 2.5 U	**14**	< 2.5 U	1.2 J	**64**	1.1 J	< 5.0 U
	9/24/2008	2.3	< 6.1 U	< 1.0 U	< 1.0 U	13	< 1.0 U	**16**	< 1.0 U	0.79 J	**38**	< 1.0 U	< 2.9 U
	9/25/2013	0.22 J	0.68 J	< 1.0 U	< 1.0 U	3.7	< 1.0 U	**17**	< 1.0 U	< 1.0 U	**10**	< 1.0 U	< 2.0 U
	12/11/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.78 J	< 1.0 U	**6.2**	< 1.0 U	< 1.0 U	**6.5**	< 1.0 U	< 2.0 U
GM-25	9/22/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/21/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-26	9/22/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/27/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/12/2001	0.19 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.1	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/25/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.92 J	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/1/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.85 J	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/16/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.3	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/20/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/21/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/27/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	1/21/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/1/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/12/2009	< 1.0 U	< 1.0 U	< 1.0 U	0.51 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/22/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/5/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/6/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/30/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/15/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-46	3/2/2006	< 1.0 U	2.7	< 1.0 U	< 1.0 U	6.8	< 1.0 U	< 1.0 U	< 1.0 U	0.35 J	**22**	1.9	< 2.0 U
	11/30/2006	< 1.0 U	0.43 J	< 1.0 U	< 1.0 U	5.2	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	1.5	1.5	< 2.0 U
	10/9/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	0.47 J	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	< 2.0 U
GM-47	3/1/2006	2.2	1.8	< 1.0 U	< 1.0 U	7.2	< 1.0 U	**78**	0.28 J	1.5	**50**	< 1.0 U	< 2.0 U
	9/19/2006	2.2	1.7 J	< 2.0 U	< 2.0 U	9.5	< 2.0 U	**64**	< 2.0 U	1.4 J	**44**	< 2.0 U	< 4.0 U
	11/30/2006	1.9 J	1.7 J	< 2.0 U	< 2.0 U	8.9	< 2.0 U	**69**	< 2.0 U	1.4 J	**51**	< 2.0 U	< 4.0 U
	9/25/2007	2.2 J	2.4 J	< 7.1 U	< 7.1 U	**170**	< 7.1 U	**71**	< 7.1 U	4.6 J	**53**	< 7.1 U	< 1.0 U
	10/1/2008	1.4 J	2 J	< 5.0 U	< 5.0 U	**160**	< 5.0 U	**86**	< 5.0 U	3.9 J	**36**	1.9 J	< 1.0 U
	11/13/2009	1.0 J	2.4 J	< 2.5 U	< 2.5 U	61	< 2.5 U	**61**	< 2.5 U	2.8	**29**	0.66 J	< 5.0 U
	1/28/2010	0.85 J	2.3 J	< 2.5 U	< 2.5 U	51	< 2.5 U	**60**	< 2.5 U	2.5	**24**	< 2.5 U	< 5.0 U
	9/23/2010	0.77 J	2.7	< 1.0 U	< 1.0 U	42	< 1.0 U	**60**	< 1.0 U	2.4	**22**	0.39 J	< 3.3 U
	9/29/2011	< 2.5 U	2.9	< 2.5 U	< 2.5 U	34	< 2.5 U	**52**	< 2.5 U	2.3 J	**18**	< 2.5 U	< 5.0 U
	9/6/2012	< 2.5 U	3.0	< 2.5 U	< 2.5 U	23	< 2.5 U	**42**	< 2.5 U	2.0 J	**13**	< 2.5 U	< 5.0 U
	9/25/2013	0.65 J	3.7	< 1.0 U	< 1.0 U	26	< 1.0 U	**47**	< 1.0 U	2.4	**14**	0.42 J	< 2.0 U
	10/7/2014	< 1.0 U	4.5	< 1.0 U	< 1.0 U	28	< 1.0 U	**46**	< 1.0 U	1.8	**8.1**	< 1.0 U	< 3.3 U
	11/4/2015	< 1.7 U	4.9	< 1.7 U	< 1.0 U	46	< 1.7 U	**49**	< 1.7 U	2.3	**8.3**	< 1.7 U	< 3.3 U
	8/24/2016	< 2.0 U	3.8	< 2.0 U	< 2.0 U	38	< 2.0 U	**39**	< 2.0 U	1.8 J	4.4	< 2.0 U	< 4.0 U
	7/10/2019	< 1.0 U	5.2	< 1.0 U	< 1.0 U	29	< 1.0 U	**40**	< 1.0 U	0.81 J	**9.3**	0.60 J	< 2.0 U
	2/12/2020	< 1.0 U	0.70 J	< 1.0 U	< 1.0 U	9.3	< 1.0 U	3.3	< 1.0 U	< 1.0 U	1.1	0.33 J	< 2.0 U
	7/27/2020	< 2.0 U	2.7	< 2.0 U	< 2.0 U	38	< 2.0 U	**33**	< 2.0 U	< 2.0 U	**10**	< 2.0 U	< 4.0 U
GM-48	3/1/2006	0.62 J	0.71 J	< 1.0 U	< 1.0 U	0.7 J	< 1.0 U	< 1.0 U	0.25 J	< 1.0 U	2.1	< 1.0 U	< 2.0 U
	11/30/2006	0.97 J	0.72 J	< 1.0 U	< 1.0 U	0.83 J	< 1.0 U	0.26 J	< 1.0 U	0.19 J	2.4	< 1.0 U	< 2.0 U
	7/10/2019	< 1.0 U	0.19 J	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	**28**	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U
	2/12/2020	0.85 J	1.4	< 1.0 U	< 1.0 U	4.3	< 1.0 U	**13**	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 2.0 U
	7/27/2020	0.57 J	1.3	< 1.0 U	< 1.0 U	4.5	< 1.0 U	**18**	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 2.0 U
GM-49	3/1/2006	2.4	3.4	< 1.0 U	< 1.0 U	4.7	< 1.0 U	2.5	0.25 J	0.66 J	**8.4**	< 1.0 U	< 2.0 U
	11/30/2006	1.8	2.6	< 1.0 U	< 1.0 U	3.8	< 1.0 U	3.1	< 1.0 U	0.53 J	**11**	< 1.0 U	< 2.0 U
	7/10/2019	< 1.0 U	0.21 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 2.0 U
	7/27/2020	1.2	0.75 J	< 1.0 U	< 1.0 U	2.4	< 1.0 U	**14**	< 1.0 U	< 1.0 U	**28**	< 1.0 U	< 2.0 U
GM-50	4/28/2006	2.4 J	1.9 J	< 5.0 U	< 5.0 U	5.2	< 5.0 U	**180**	< 5.0 U	1.6 J	**120**	< 5.0 U	< 1.0 U
	9/19/2006	1.4 J	1.5 J	< 5.6 U	< 5.6 U	13	< 5.6 U	**150**	< 5.6 U	1.7 J	**84**	< 5.6 U	< 1.0 U
	11/30/2006	1.6 J	1.5 J	< 5.0 U	< 5.0 U	34	< 5.0 U	**140**	< 5.0 U	1.5 J	**86**	< 5.0 U	< 1.0 U
	9/25/2007	1.4 J	1.9 J	< 5.9 U	< 5.9 U	**130**	< 5.9 U	**100**	< 5.9 U	2.5 J	**44**	< 5.9 U	< 1.0 U
	10/1/2008	1.6 J	1.7 J	< 2.5 U	< 2.5 U	13	< 2.5 U	**82**	< 2.5 U	0.68 J	**54**	< 2.5 U	< 5.0 U
	11/13/2009	1.8 J	1.3 J	< 5.0 U	< 5.0 U	11	< 5.0 U	**110**	< 5.0 U	< 5.0 U	**120**	< 5.0 U	< 1.0 U
	1/28/2010	1.5 J	1.2 J	< 5.0 U	< 5.0 U	8.1	< 5.0 U	**130**	< 5.0 U	< 5.0 U	**120**	< 5.0 U	< 1.0 U
	9/23/2010	1.6 J	< 5.0 U	< 5.0 U	< 5.0 U	4.0 J	< 5.0 U	**130**	< 5.0 U	0.95 J	**140**	< 5.0 U	< 1.0 U
	9/30/2011	1.7 J	2.3	< 2.0 U	< 2.0 U	7.1	< 2.0 U	**95**	< 2.0 U	0.62 J	**86**	< 2.0 U	< 4.0 U
	9/6/2012	2.7 J	< 5.0 U	< 5.0 U	< 5.0 U	3.4 J	< 5.0 U	**84**	< 5.0 U	< 5.0 U	**63**	< 5.0 U	< 1.0 U
	9/25/2013	2.5	3.5	< 1.0 U	< 1.0 U	5.7	< 1.0 U	**73**	< 1.0 U	0.29 J	**40**	0.30 J	< 2.0 U
	10/7/2014	< 1.0 U	7.1	< 1.0 U	< 1.0 U	5.1	< 1.0 U	**39**	< 1.0 U	< 1.0 U	**5.5**	1.8	< 2.9 U
	11/4/2015	< 1.0 U	4.0	< 1.0 U	< 1.0 U	5.6	< 1.0 U	**26**	< 1.0 U	< 1.0 U	4.0	1.7	< 2.0 U
	8/23/2016	< 1.0 U	2.1	< 1.0 U	< 1.0 U	5.1	< 1.0 U	**14**	< 1.0 U	< 1.0 U	4.1	< 1.0 U	< 2.0 U
	7/10/2019	< 1.0 U	7.4	< 1.0 U	< 1.0 U	7.4	< 1.0 U	2.2	< 1.0 U	0.20 J	0.39 J	1.8	< 2.0 U
	2/12/2020	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	8.3	< 1.0 U	3.6	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	7/27/2020	< 1.0 U	2.2	< 1.0 U	< 1.0 U	7.0	< 1.0 U	1.9	< 1.0 U	< 1.0 U	0.75 J	1.4	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-51	4/28/2006	0.9 J	< 1.0 U	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	**6.7**	< 1.0 U	< 1.0 U	4.9	< 1.0 U	< 2.0 U
	11/30/2006	0.76 J	< 1.0 U	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	**6.6**	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 2.0 U
	9/27/2007	0.61 J	0.23 J	< 1.0 U	< 1.0 U	1.0	< 1.0 U	**7.2**	0.29 J	< 1.0 U	3.9	< 1.0 U	< 2.0 U
	9/30/2008	0.6 J	0.78 J	< 1.0 U	< 1.0 U	2.0	< 1.0 U	**9.3**	< 1.0 U	0.70 J	**7.7**	< 1.0 U	< 2.0 U
	9/25/2013	1.9	1.8	< 1.0 U	< 1.0 U	2.8	< 1.0 U	**46**	< 1.0 U	0.30 J	**64**	< 1.0 U	< 2.0 U
	10/6/2014	0.70 J	1.7 J	< 2.0 U	< 2.0 U	5.0	< 2.0 U	**67**	< 2.0 U	< 2.0 U	**33**	< 2.0 U	< 4.0 U
	10/30/2015	< 2.0 U	2.8	< 2.0 U	< 2.0 U	6.5	< 2.0 U	**63**	< 2.0 U	< 2.0 U	**16**	< 2.0 U	< 4.0 U
	8/25/2016	1.2	2.5	< 1.0 U	< 1.0 U	6.4	< 1.0 U	**6.5**	< 1.0 U	< 1.0 U	**33**	< 1.0 U	< 2.0 U
	7/10/2019	< 1.0 U	1.9	< 1.0 U	< 1.0 U	6.1	< 1.0 U	**44**	< 1.0 U	0.22 J	**5.0**	< 1.0 U	< 2.0 U
	2/12/2020	< 1.0 U	2.0	< 1.0 U	< 1.0 U	2.9	< 1.0 U	**26**	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 2.0 U
	7/27/2020	< 1.0 U	1.1	< 1.0 U	< 1.0 U	3.8	< 1.0 U	**25**	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 2.0 U
GM-52	4/28/2006	2.0	0.94 J	< 2.0 U	< 2.0 U	1.9 J	< 2.0 U	**75**	< 2.0 U	0.67 J	**61**	< 2.0 U	< 4.0 U
	11/30/2006	1.3 J	0.93 J	< 2.0 U	< 2.0 U	2.7	< 2.0 U	**67**	< 2.0 U	0.76 J	**47**	< 2.0 U	< 4.0 U
	9/26/2007	1.3 J	1.5 J	< 2.5 U	< 2.5 U	18	< 2.5 U	**88**	< 2.5 U	1.0 J	**47**	< 2.5 U	< 5.0 U
	9/30/2008	1.9 J	3.0	< 2.5 U	< 2.5 U	14	< 2.5 U	**88**	< 2.5 U	< 2.5 U	**43**	< 2.5 U	< 5.0 U
	11/12/2009	1.1 J	1.1 J	< 2.5 U	< 2.5 U	1.5 J	< 2.5 U	**94**	< 2.5 U	0.83 J	**43**	< 2.5 U	< 5.0 U
	1/27/2010	1.0 J	1.0 J	< 4.0 U	< 4.0 U	1.6 J	< 4.0 U	**94**	< 4.0 U	0.99 J	**42**	< 4.0 U	< 8.0 U
	9/22/2010	0.92 J	0.94 J	< 3.3 U	< 3.3 U	1.8 J	< 3.3 U	**90**	< 3.3 U	0.74 J	**50**	< 3.3 U	< 6.7 U
	9/29/2011	< 4.0 U	1.9 J	< 4.0 U	< 4.0 U	4.2	< 4.0 U	**73**	< 4.0 U	< 4.0 U	**38**	< 4.0 U	< 8.0 U
	9/5/2012	< 4.0 U	4.1	< 4.0 U	< 4.0 U	7.9	< 4.0 U	**66**	< 4.0 U	< 4.0 U	**29**	< 4.0 U	< 8.0 U
	9/25/2013	0.47 J	1.2	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**53**	< 1.0 U	< 1.0 U	**18**	< 1.0 U	< 2.0 U
	10/6/2014	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**44**	< 2.0 U	< 2.0 U	**8.2**	< 2.0 U	< 4.0 U
	10/30/2015	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**32**	< 2.0 U	< 2.0 U	**5.8**	< 2.0 U	< 4.0 U
	8/25/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	**30**	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	7/10/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 1.0 U	0.83 J	< 1.0 U	< 2.0 U
	7/27/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 2.0 U
GM-55	9/14/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.4**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/12/2009	< 1.0 U	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	**7.7**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/22/2010	< 1.0 U	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	< 1.0 U	**7.2**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.1**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/5/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.6	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/6/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.3	0.34 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/15/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-57	9/14/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	1.9	0.48 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	1/21/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-62(1)	9/14/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	0.24 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	4/8/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**20**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/6/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-63	9/14/2006	2.3 J	1.9 J	< 5.0 U	< 5.0 U	5.6	< 5.0 U	**160**	< 5.0 U	1.4 J	**120**	< 5.0 U	< 1.0 U
	12/1/2006	2.3 J	1.9 J	< 4.0 U	< 4.0 U	8.8	< 4.0 U	**140**	< 4.0 U	1.3 J	**100**	< 4.0 U	< 8.0 U
	9/25/2007	2.7 J	1.8 J	< 6.7 U	< 6.7 U	5.0 J	< 6.7 U	**130**	< 6.7 U	< 6.7 U	**120**	< 6.7 U	< 1.0 U
	10/1/2008	4.0 J	2.2 J	< 5.0 U	< 5.0 U	4.9 J	< 5.0 U	**140**	< 5.0 U	< 5.0 U	**92**	< 5.0 U	< 1.0 U
	1/28/2010	2.0 J	< 5.7 U	< 5.7 U	< 5.7 U	3.2 J	< 5.7 U	**150**	< 5.7 U	< 5.7 U	**140**	< 5.7 U	< 1.0 U
	9/6/2012	3.2 J	1.6 J	< 5.7 U	< 5.7 U	2.2 J	< 5.7 U	**89**	< 5.7 U	< 5.7 U	**58**	< 5.7 U	< 1.0 U
	9/25/2013	4.4	1.6	< 1.0 U	< 1.0 U	1.9	< 1.0 U	**81**	< 1.0 U	0.33 J	**48**	< 1.0 U	< 2.0 U
	10/7/2014	2.8	1.9	< 1.0 U	< 1.0 U	2.4	< 1.0 U	**53**	< 1.0 U	< 1.0 U	**20**	< 1.0 U	< 2.9 U
	11/4/2015	2.2	1.9	< 1.7 U	< 1.7 U	3.4	< 1.7 U	**46**	< 1.7 U	< 1.7 U	**19**	< 1.7 U	< 3.3 U
	8/24/2016	2.2	0.84 J	< 1.7 U	< 1.7 U	1.2 J	< 1.7 U	**38**	< 1.7 U	< 1.7 U	5.0	< 1.7 U	< 3.3 U
	7/10/2019	< 1.0 U	1.6	< 1.0 U	< 1.0 U	2.6	< 1.0 U	**12**	< 1.0 U	< 1.0 U	3.7	0.31 J	< 2.0 U
	2/11/2020	1.0 J	< 2.0 U	< 2.0 U	< 2.0 U	5.3	< 2.0 U	**51**	< 2.0 U	< 2.0 U	1.5 J	< 2.0 U	< 4.0 U
	7/28/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	**37**	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 2.0 U
GM-64	9/14/2006	1.8 J	1.8 J	< 2.5 U	< 2.5 U	16	< 2.5 U	**77**	< 2.5 U	1.6 J	**34**	< 2.5 U	< 5.0 U
	12/1/2006	2.1 J	2.1 J	< 2.5 U	< 2.5 U	42	< 2.5 U	**85**	< 2.5 U	2 J	**35**	< 2.5 U	< 5.0 U
	9/25/2007	< 3.3 U	2.7 J	< 3.3 U	< 3.3 U	**74**	< 3.3 U	**11**	< 3.3 U	6.6	4.5	**18**	< 6.7 U
	10/1/2008	0.55 J	2.7	< 1.0 U	< 1.0 U	15	< 1.0 U	**31**	< 1.0 U	2.3	**14**	**2.3**	< 2.0 U
	9/26/2013	0.71 J	4.2	< 1.0 U	< 1.0 U	44	< 1.0 U	**41**	< 1.0 U	2.8	**31**	**5.8**	< 2.0 U
	7/10/2019	0.65 J	2.5	< 1.0 U	< 1.0 U	40	< 1.0 U	**15**	< 1.0 U	0.87 J	**31**	1.3	< 2.0 U
	2/11/2020	< 2.0 U	2.1	< 2.0 U	< 2.0 U	57	< 2.0 U	**24**	< 2.0 U	0.80 J	**24**	**2.7**	< 4.0 U
	7/28/2020	< 1.0 U	0.58 J	< 1.0 U	< 1.0 U	29	< 1.0 U	**14**	< 1.0 U	0.46 J	4.3	1.5	< 2.0 U
GM-65S	5/2/2007	0.62 J	0.78 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**11**	< 1.0 U	< 1.0 U	**8.0**	< 1.0 U	< 2.0 U
	1/21/2008	0.58 J	0.54 J	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**13**	< 1.0 U	< 1.0 U	**7.9**	< 1.0 U	< 2.0 U
	10/6/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**8.7**	< 1.0 U	< 1.0 U	3.8	< 1.0 U	< 2.0 U
	11/12/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	**11**	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 2.0 U
	1/27/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.22 J	< 1.0 U	**13**	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 2.0 U
	9/22/2010	< 1.0 U	0.34 J	< 1.0 U	< 1.0 U	0.63 J	< 1.0 U	**9.9**	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	0.16 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.8**	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 2.0 U
	9/5/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.5**	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.6**	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	< 2.0 U
	10/6/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.4**	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	< 2.0 U
	11/5/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/17/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/14/2018	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-77S	9/27/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/21/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-78	10/23/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**8.9**	0.23 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	1/21/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/2/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/12/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	**12**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/29/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.3	0.18 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/5/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**9.5**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/6/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**9.5**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.1**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/25/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.2**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-79	10/23/2007	0.66 J	0.24 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
	10/2/2008	0.65 J	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 2.0 U
	11/12/2009	0.72 J	0.31 J	< 1.0 U	0.48 J	0.28 J	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 2.0 U
	9/22/2010	0.51 J	0.23 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	0.22 J	< 1.0 U	< 1.0 U	0.19 J	< 1.0 U	0.34 J	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U
	9/5/2012	0.72 J	0.94 J	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	0.29 J	2.2	< 1.0 U	< 2.0 U
	9/25/2013	0.88 J	1.1	< 1.0 U	< 1.0 U	1.4	< 1.0 U	0.31 J	< 1.0 U	0.42 J	3.9	< 1.0 U	< 2.0 U
	10/6/2014	1.0	3.2	< 1.0 U	< 1.0 U	8.4	< 1.0 U	1.0	< 1.0 U	0.43 J	**23**	< 1.0 U	< 2.0 U
	11/4/2015	0.71 J	2.2	< 1.4 U	< 1.4 U	7.4	< 1.4 U	0.97 J	< 1.4 U	< 1.4 U	**31**	< 1.4 U	< 2.9 U
	10/27/2016	0.70 J	2.6	< 1.0 U	< 1.0 U	7.4	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**36**	< 1.0 U	< 2.0 U
	8/1/2017	0.60 J	2.3	< 1.0 U	< 1.0 U	5.4	< 1.0 U	4.3	< 1.0 U	< 1.0 U	**34**	< 1.0 U	< 2.0 U
	7/23/2018	0.39 J	1.7	< 1.0 U	< 1.0 U	4.5	< 1.0 U	**13**	< 1.0 U	< 1.0 U	**21**	0.27 J	< 2.0 U
GM-80	10/23/2007	< 1.0 U	0.38 J	< 1.0 U	< 1.0 U	1.5	< 1.0 U	0.68 J	< 1.0 U	0.21 J	4.0	< 1.0 U	< 2.0 U
	9/22/2008	< 1.0 U	0.39 J	< 1.0 U	< 1.0 U	3.6	< 1.0 U	0.93 J	< 1.0 U	0.19 J	**5.4**	< 1.0 U	< 2.0 U
	11/12/2009	0.24 J	0.55 J	< 1.0 U	< 1.0 U	3.2	< 1.0 U	1.6	< 1.0 U	0.25 J	**9.8**	< 1.0 U	< 2.0 U
	4/9/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.85 J	< 1.0 U	1.9	< 1.0 U	< 1.0 U	**6.6**	< 1.0 U	< 2.0 U
	9/21/2010	< 1.0 U	0.30 J	< 1.0 U	< 1.0 U	1.3	< 1.0 U	2.6	< 1.0 U	< 1.0 U	**6**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	0.47 J	< 1.0 U	< 1.0 U	2.7	< 1.0 U	4.1	< 1.0 U	0.24 J	**5.9**	< 1.0 U	< 2.0 U
	9/5/2012	0.43 J	1.7	< 1.0 U	< 1.0 U	8.3	< 1.0 U	**5.2**	< 1.0 U	0.30 J	**13**	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.7**	< 1.0 U	< 1.0 U	4.6	< 1.0 U	< 2.0 U
	10/6/2014	0.50 J	0.66 J	< 1.0 U	< 1.0 U	2.5	< 1.0 U	3.5	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
	11/4/2015	< 1.0 U	0.96 J	< 1.0 U	< 1.0 U	2.9	< 1.0 U	**18**	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 2.0 U
	10/27/2016	0.54 J	0.60 J	< 1.0 U	< 1.0 U	3.6	< 1.0 U	**20**	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
	8/1/2017	0.32 J	0.38 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**20**	< 1.0 U	< 1.0 U	**7.5**	< 1.0 U	< 2.0 U
	7/23/2018	< 1.0 U	0.54 J	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**18**	< 1.0 U	< 1.0 U	**5.3**	< 1.0 U	< 2.0 U
	3/27/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.76 J	< 1.0 U	**15**	< 1.0 U	< 1.0 U	3.6 B	< 1.0 U	< 2.0 U
	7/30/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.92 J	< 1.0 U	**12**	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
GM-81	10/23/2007	0.22 J	0.93 J	< 1.0 U	< 1.0 U	0.98 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.61 J	< 1.0 U	< 2.0 U
	4/9/2010	0.23 J	0.92 J	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 2.0 U
	7/31/2017	0.26 J	1.1	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2	< 1.0 U	< 2.0 U
	7/23/2018	< 1.0 U	1.1	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	0.19 J	1.5	< 1.0 U	< 2.0 U
MW-5	7/31/2017	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	1.1 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7 J	< 1.0 U	< 2.0 U
	7/23/2018	< 1.0 U	0.64 J	< 1.0 U	< 1.0 U	0.92 J	< 1.0 U	< 1.0 U	< 1.0 U	<1.0 U	1.6	< 1.0 U	< 2.0 U
RMW-95	8/1/2017	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	1.4	< 1.0 U	0.48 J	< 1.0 U	< 1.0 U	**5.1**	< 1.0 U	< 2.0 U
	7/23/2018	< 1.0 U	0.57 J	< 1.0 U	0.13 J	0.38 J	0.13 J	3.4	0.33 J	< 1.0 U	1.6	< 1.0 U	0.19 J
	3/27/2019	0.43 J	0.35 J	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	2.6	< 1.0 U	< 1.0 U	0.63 JB	< 1.0 U	< 2.0 U
	7/30/2020	0.48 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**8.4**	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 2.0 U
RMW-96	8/2/2017	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.95 J	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	7/23/2018	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	0.80 J	< 1.0 U	**7.0**	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 2.0 U
	3/27/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.43 J	< 1.0 U	2.0	< 1.0 U	< 1.0 U	0.44 JB	< 1.0 U	< 2.0 U
	7/30/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
RMW-97	8/1/2017	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.62 J	< 1.0 U	3.2	< 1.0 U	< 1.0 U	0.63 J	< 1.0 U	< 1.0 U
	7/23/2018	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.93 J	< 1.0 U	4.7	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	3/27/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 1.0 U	0.26 JB	< 1.0 U	< 2.0 U
	7/30/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
RMW-98	7/10/2019	1.2	1.6	< 1.0 U	< 1.0 U	6.8	< 1.0 U	**35**	< 1.0 U	0.29 J	**8.5**	0.27 J	< 2.0 U
	2/14/2020	2.0	0.45 J	< 2.0 U	< 2.0 U	1.2 J	< 2.0 U	**62**	< 2.0 U	< 2.0 U	3.4	< 2.0 U	< 4.0 U
	7/28/2020	0.55 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**42**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
RMW-99	7/10/2019	0.77 J	2.1	< 1.0 U	< 1.0 U	2.9	< 1.0 U	**35**	< 1.0 U	< 1.0 U	2.3	0.26 J	< 2.0 U
	2/14/2020	1.2 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**52**	< 2.0 U	< 2.0 U	1.7 J	< 2.0 U	< 4.0 U
	7/28/2020	0.51 J	< 2.0 U	< 2.0 U	< 2.0 U	1.8 J	< 2.0 U	**46**	< 2.0 U	< 2.0 U	0.73 J	< 2.0 U	< 4.0 U
RMW-100	7/8/2019	< 1.0 U	0.82 J	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.50 J	< 2.0 U
	2/11/2020	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	7/27/2020	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
RMW-101	7/8/2019	< 1.0 U	1.3	< 1.0 U	0.13 J	6.7	< 1.0 U	0.49 J	< 1.0 U	0.30 J	1.9	0.61 J	< 2.0 U
	2/11/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	< 1.0 U	0.14 J	< 1.0 U	< 2.0 U
	7/27/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
RMW-102	7/8/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**14**	< 1.0 U	< 1.0 U	0.39 J	< 1.0 U	< 2.0 U
	2/11/2020	< 1.0 U	1.6	< 1.0 U	< 1.0 U	10	< 1.0 U	< 1.0 U	< 1.0 U	0.58 J	0.63 J	0.30 J	< 2.0 U
	7/28/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 1.0 U	0.37 J	< 1.0 U	< 2.0 U

Table D-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
TW-2	9/26/2000	4.5	27.8	< 1.0 U	< 1.0 U	23	10	5.0	< 1.0 U	2.9	**43**	**5.9**	3.2
	11/9/2001	3.9	20	< 2.0 U	< 2.0 U	8.8	0.38 J	**8.5**	< 2.0 U	2.4	**48**	**2.7**	< 2.0 U
	9/20/2002	2.2	9.0	< 2.0 U	< 2.0 U	26	< 2.0 U	**5.9**	< 2.0 U	1.4	**70**	**2.5**	< 2.0 U
	10/2/2003	0.66 J	5.7	< 1.0 U	1.5	8.3	0.86 J	4.7	< 1.0 U	0.59	**24**	1.4	< 1.0 U
	9/14/2004	< 1.0 U	22	< 1.0 U	2.9	5.5	< 1.0 U	< 1.0 U	< 1.0 U	2.0	1.5	**2.5**	< 1.0 U
	10/20/2005	< 1.0 U	12	< 1.0 U	2.5	5.3	12	< 1.0 U	3.4	1.4	< 1.0 U	**4.4**	5.0
	9/19/2006	0.55 J	3.4	< 1.0 U	< 1.0 U	11	< 1.0 U	**7.0**	< 1.0 U	0.38 J	**32**	0.27 J	< 2.0 U
	9/18/2007	< 1.0 U	1.7	< 1.0 U	0.81 J	7.9	< 1.0 U	1.9	< 1.0 U	0.25 J	**24**	0.97 J	< 2.0 U
	9/24/2008	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 5.2 U	0.76 J	1.4	< 1.0 U	0.36 J	**7.5**	1.0	< 2.0 U
	11/11/2009	< 2.5 U	1.1 J	< 2.5 U	< 2.5 U	1.6 J	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	1.1 J	< 2.5 U	< 5.0 U
	9/28/2010	< 1.0 U	2.0	< 1.0 U	1.2	2.1	< 1.0 U	0.52 J	< 1.0 U	0.30 J	1.6	0.71 J	< 2.0 U
	9/28/2011	< 1.0 U	1.8	< 1.0 U	1.2	5.7	0.45 J	1.2	< 1.0 U	0.25 J	**5.9**	1.1	< 2.0 U
	9/6/2012	< 1.0 U	1.3	< 1.0 U	0.51 J	3.6	< 1.0 U	< 1.0 U	0.18 J	0.23 J	0.26 J	0.56 J	< 2.0 U
	9/25/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/9/2014	< 1.0 U	0.48 J	< 1.0 U	< 1.0 U	0.56 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UB	0.64 J	< 2.0 U
	11/4/2015	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.29 J	< 2.0 U
	8/17/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
WSU-22	3/1/2006	3.1	1.7	< 1.0 U	< 1.0 U	4.3	< 1.0 U	**110**	< 1.0 U	1.2 J	**88**	< 1.0 U	< 3.3 U
WSU-23	3/1/2006	2.5	0.97 J	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.1**	< 1.0 U	< 2.0 U
	11/30/2006	2.1	0.73 J	0.2 J	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.1**	< 1.0 U	< 2.0 U
	7/10/2019	1.7	0.86 J	< 1.0 U	< 1.0 U	0.77 J	< 1.0 U	**28**	< 1.0 U	< 1.0 U	3.7	< 1.0 U	< 2.0 U
	2/13/2020	1.4	0.62 J	< 1.0 U	< 1.0 U	0.65 J	< 1.0 U	**5.3**	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	7/28/2020	1.3 J	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**73**	< 4.0 U	< 4.0 U	3.5 J	< 4.0 U	< 8.0 U
WSU-24	9/23/1999	2.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	**17**	< 1.0 U	< 1.0 U
	9/26/2000	2.1	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	1.2.	< 1.0 U	< 1.0 U	**17**	< 1.0 U	< 1.0 U
	11/9/2001	2.4	0.81 J	< 1.0 U	< 1.0 U	4.0	< 1.0 U	1.6	< 1.0 U	< 0.50 U	**18**	< 1.0 U	< 1.0 U
	9/24/2002	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.2	< 1.0 U	< 0.50 U	**13**	< 1.0 U	< 1.0 U
	9/22/2003	0.67 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.0	< 1.0 U	< 0.50 U	**7.9**	< 1.0 U	< 1.0 U
	9/16/2004	0.58 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.3	< 1.0 U	< 0.50 U	**8.0**	< 1.0 U	< 1.0 U
	10/20/2005	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 2.0 U
	9/26/2006	0.65 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.81 J	< 1.0 U	< 1.0 U	**10**	< 1.0 U	< 2.0 U
	9/19/2007	0.66 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	**7.9**	< 1.0 U	< 2.0 U
	9/25/2008	0.62 J	0.85 J	< 1.0 U	< 1.0 U	2.4 J	< 1.0 U	1.7	< 1.0 U	0.35 J	**12 J**	< 1.0 U	< 2.0 U
	9/25/2013	0.23 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 2.0 U
	12/4/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.2**	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**8.4**	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) - Well abandoned.
1,1,1-TCA - 1,1,1-Trichloroethane.
1,1-DCA - 1,1-Dichloroethane.
1,1-DCE - 1,1-Dichloroethene.
B - Compound was found in the blank and sample.
BOLD - Result above MCL.
cis-1,2-DCE - cis-1,1-Dichloroethene.
F1 - MS and/or MSD recovery exceeds control limits.
F2 - MS/MSD Relative Percent Difference exceeds control limits.
J - Value is estimated.
K - The compound was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased high.
MCL - Maximum Contaminant Level.
PCE - Tetrachloroethene.
trans-1,2-DCE - trans-1,2-Dichloroethene.
TCE - Trichloroethene.
U - Constituent not detected above laboratory reporting limit shown.
UB - Analyte considered non-detect at listed value due to associated blank contamination.
ug/L - Micrograms per Liter.
VOCs - Volatile Organic Compounds.
* - LCS or LCSD is outside acceptable limits.

Table D-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
Upgradient of the Site													
HR-12	9/14/1999	< 1.0 UJ	2.7	< 1.0 U	1.2	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U
	9/28/2000	< 1.0 U	2.2	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.5**	< 1.0 U
	11/14/2001	< 1.0 U	3.6	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	< 1.0 U	0.23	< 1.0 U	**3.8**	< 1.0 U
	9/26/2002	< 1.0 U	2.4	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.7	< 1.0 U
	9/18/2003	< 1.0 U	1.7	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.6	< 1.0 U
	9/21/2004	< 1.0 U	1.8	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.1	< 1.0 U
	10/24/2005	< 1.0 U	2.1	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 2.0 U
	9/26/2006	< 1.0 U	2.1	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/19/2007	< 1.0 U	2.2	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/25/2008	0.39 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	**5.1**	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	2	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2010	< 1.0 U	2.1	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	2.8	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	2.1	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	1.8	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/8/2014	< 1.0 U	3.4	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	12/8/2015	< 1.0 U	2.4	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 2.0 U
	8/16/2016	< 1.0 U	3.1	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
RMW-88	9/26/2012	< 1.4 U	17	< 1.4 U	< 1.4 U	43	< 1.4 U	< 1.4 U	0.21 J	1.5	< 1.4 U	1.1 J	< 2.9 U
	9/27/2013	< 1.0 U	35	< 1.0 U	< 1.0 U	**75**	< 1.0 U	< 1.0 U	< 1.0 U	4.5	< 1.0 U	2.0	< 2.0 U
	10/8/2014	< 2.5 U	32	< 2.5 U	< 2.5 U	**78**	< 2.5 U	< 2.5 U	< 2.5 U	4.3	< 2.5 U	1.2 J	< 5.0 U
	8/26/2015	< 1.0 U	30	< 1.0 U	< 1.0 U	60	< 1.0 U	< 1.0 U	< 1.0 U	3.8	< 1.0 U	**3.3**	< 2.0 U
	10/30/2015	< 2.0 U	27	< 2.0 U	< 2.0 U	61	< 2.0 U	< 2.0 U	< 2.0 U	3.2	< 2.0 U	1.5 J	< 4.0 U
	8/26/2016	< 2.0 U	24	< 2.0 U	< 2.0 U	55	< 2.0 U	< 2.0 U	< 2.0 U	3.2	< 2.0 U	< 2.0 U	< 4.0 U
On-Site													
31	9/29/2000	< 1.0 U	7.4	< 1.0 U	< 1.0 U	8.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**12.9**	**4.4**	< 1.0 U
	11/15/2001	< 1.0 U	3.1	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**5.1**	**2.5**	< 1.0 U
39	9/27/2002	< 1.0 U	1.6	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	3.8	0.51J	< 1.0 U
	9/24/2003	< 1.0 U	0.58 J	< 1.0 U	< 1.0 U	0.71	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	0.89 J	< 1.0 U	< 1.0 U
GM-7R	9/28/1999	4.2	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**76.1**	< 1.0 U	< 1.0 U
	8/25/2015	< 1.0 U	0.86 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**53**	< 1.0 U	0.47 J	**23**	0.60 J	< 2.0 U
GM-19D	9/28/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13.5**	1.5	< 1.0 U
	10/2/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.9	**15.7**	< 1.0 U
	11/14/2001	0.18 J	< 1.0 U	< 1.0 U	< 1.0 U	0.92	< 1.0 U	< 1.0 U	0.38J	< 0.50 U	3.7	**13**	< 1.0 U
	9/26/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.81	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	3.1	0.36 J	< 1.0 U
	9/25/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	0.24 J	**17**	< 1.0 U
	9/20/2004	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	2	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	3.5	**18**	< 1.0 U
	10/25/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	**15**	< 2.0 U
	9/26/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	**18**	< 2.0 U
	9/17/2007	0.25 J	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.2	**16**	< 2.0 U
	9/23/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**9.8**	< 2.0 U
	11/11/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	**14**	< 2.0 U
	9/27/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.98 J	**9.9**	< 2.0 U
	9/29/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	**8.6**	< 2.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	**7.4**	**2.4**	0.32 J
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	**7.8**	< 2.0 U
	10/7/2014	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	5.8	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	5.0	**4.1**	< 2.0 U
	11/4/2015	< 2.0 U	3	< 2.0 U	< 2.0 U	39	< 2.0 U	11	< 2.0 U	1.0 J	**69**	**1.0 J**	< 4.0 U
	8/16/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.4	< 1.0 U	0.62 J	< 1.0 U	< 1.0 U	4.9	**6.2**	< 2.0 U
GM-39	12/10/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	0.18 J	< 0.50 U	< 1.0 U	1.3	< 1.0 U
	9/20/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.8	< 1.0 U
	10/24/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.77 J	< 2.0 U
	9/27/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 2.0 U
	9/26/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	19 J	< 1.0 U	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	1.6	< 2.0 U
	10/1/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.2**	< 2.0 U
	9/27/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.68 J	< 1.0 U	< 1.0 U	0.63 J	1.5	< 2.0 U
GM-40	12/10/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	**3.1**	< 1.0 U
	9/20/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	**3.2**	< 1.0 U
	10/25/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.9**	< 2.0 U
	9/26/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.9**	< 2.0 U
	9/25/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**4.0**	< 2.0 U
	9/30/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.6**	< 2.0 U
GM-41	12/10/2003	< 11 U	< 11 U	< 11 U	< 1.0 U	10	< 11 U	< 11 U	< 11 U	< 5.6 U	**320**	< 11 U	< 11 U
	9/21/2004	< 6.2 U	< 6.2 U	< 6.2 U	< 6.2 U	24	< 6.2 U	< 6.2 U	< 6.2 U	< 3.1 U	**180**	< 6.2 U	< 6.2 U
	10/24/2005	< 10 U	< 10 U	< 10 U	< 10 U	16	< 10 U	< 10 U	< 10 U	< 10 U	**250**	< 10 U	< 20 U
	9/18/2006	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	11	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**210**	< 4.0 U	< 8.0 U
	5/3/2007	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	15	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	**170**	**2.4 J**	< 13 U
	9/20/2007	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	17	< 6.7 U	< 6.7 U	< 6.7 U	1.4 J	**230**	1.9 J	< 13 U
	9/26/2008	< 7.1 U	< 7.1 U	< 7.1 U	< 7.1 U	11	< 7.1 U	< 7.1 U	< 7.1 U	< 7.1 U	**180**	< 7.1 U	< 14 U
	9/27/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	12	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	**79**	1.9	< 2.0 U
GM-42	12/9/2003	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	11	< 1.0 U	0.27 J	< 1.0 U	0.34 J	0.37 J	1.0	< 1.0 U
	9/20/2004	< 1.0 U	0.70 J	0.25 J	< 1.0 U	16	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	0.43 J	0.92 J	< 1.0 U
	10/25/2005	< 1.0 U	0.64 J	0.21 J	< 1.0 U	17	< 1.0 U	0.19 J	< 1.0 U	0.59 J	0.85 J	0.56 J	< 2.0 U
	9/26/2006	< 1.0 U	0.50 J	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	0.64 J	0.45 J	< 2.0 U
	9/25/2007	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	18	< 1.0 U	< 1.0 U	0.18 J	0.69 J	2.2	0.44 J	< 2.0 U
	9/30/2008	< 1.0 U	0.66 J	0.53 J	< 1.0 U	20	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	**9.9**	0.31 J	< 2.0 U
	9/6/2012	< 1.0 U	0.41 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.25 J	< 1.0 U	**6.4**	< 2.0 U

Table D-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-54	9/14/2006	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	**180**	< 6.7 U	< 6.7 U	3.2 J	< 6.7 U	< 13 U
	5/2/2007	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**160**	< 5.0 U	< 5.0 U	2.9 J	< 5.0 U	< 10 U
	9/20/2007	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**150**	< 5.0 U	< 5.0 U	2.4 J	< 5.0 U	< 10 U
	9/30/2008	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	**190**	< 5.7 U	< 5.7 U	2.5 J	< 5.7 U	< 11 U
	11/13/2009	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**120**	< 5.0 U	< 5.0 U	2.9 J	< 5.0 U	< 10 U
	1/28/2010	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**120**	< 5.0 U	< 5.0 U	2.4 J	< 5.0 U	< 10 U
	9/23/2010	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	**92**	< 2.5 U	< 2.5 U	2.2 J	< 2.5 U	< 5.0 U
	9/29/2011	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**83**	< 4.0 U	< 4.0 U	2.6 J	< 4.0 U	< 8.0 U
	9/7/2012	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**64**	< 4.0 U	< 4.0 U	2.8 J	< 4.0 U	< 8.0 U
	9/26/2013	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**69**	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 2.0 U
	10/8/2014	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	**66**	< 1.7 U	< 1.7 U	< 1.7 UB	< 1.7 U	< 3.3 U
	11/3/2015	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**62**	< 2.0 U	< 2.0 U	1.3 J	< 2.0 U	< 4.0 U
	8/18/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**61**	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
GM-58	9/14/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.73 J	< 1.0 U	4.4	0.4 J	< 1.0 U	0.72 J	< 1.0 U	< 2.0 U
	11/30/2006	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**85**	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U
	5/3/2007	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	**82**	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	< 5.7 U
	9/20/2007	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**69**	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U
	9/26/2008	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	**80**	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 5.0 U
	9/27/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**34**	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	< 2.0 U
GM-61	9/15/2006	0.5.0 J	2.2	< 1.7 U	< 1.7 U	2.6	< 1.7 U	**20**	0.44 J	< 1.7 U	**36**	< 1.7 U	< 3.3 U
	9/26/2007	0.59 J	1.6 J	< 1.7 U	< 1.7 U	3.9	< 1.7 U	**28**	< 1.7 U	< 1.7 U	**56**	< 1.7 U	< 3.3 U
	10/1/2008	< 1.0 U	0.94 J	0.19 J	< 1.0 U	20	< 1.0 U	**13**	< 1.0 U	0.92 J	**23**	0.75 J	< 2.0 U
	9/26/2013	< 1.0 U	1.3	< 1.0 U	< 1.0 U	17	< 1.0 U	**7.2**	< 1.0 U	1.1	**5.2**	1.2	< 2.0 U
	8/26/2015	< 1.0 U	3.3	< 1.0 U	< 1.0 U	25	< 1.0 U	**32**	< 1.0 U	1.5	**12**	0.45 J	< 2.0 U
GM-67D	5/3/2007	0.59 J	3.0	0.36 J	< 1.7 U	23	< 1.7 U	**54**	< 1.7 U	0.83 J	**45**	< 1.7 U	< 3.3 U
	10/10/2014	1.2 J	3.7	< 3.3 U	< 3.3 U	**120**	< 3.3 U	0.84 J	< 3.3 U	2.6 J	**15.0**	**3.5**	< 6.7 U
	11/4/2015	2.5	6.8	1.8	< 1.0 U	**140 F1K**	< 1.0 U	1.7	< 1.0 U	4.6	**76**	0.70 J	< 2.0 U
GM-68D	5/4/2007	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	**1500**	< 50 U	< 50 U	**750**	< 50 U	< 100 U
	10/3/2008	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	14	< 5.0 U	**190**	< 5.0 U	< 5.0 U	**46**	< 5.0 U	< 10 U
	11/16/2009	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	4.5	< 2.0 U	**130 J**	< 2.0 U	< 2.0 U	**35**	< 2.0 U	< 4.0 U
	9/29/2010	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	3.0 J	< 3.3 U	**100**	< 3.3 U	< 3.3 U	**22**	< 3.3 U	< 6.7 U
	9/30/2011	< 1.7 U	< 1.7 U	< 1.7 U	< 1.7 U	1.5 J	< 1.7 U	**62**	< 1.7 U	< 1.7 U	**13**	< 1.7 U	< 3.3 U
	9/7/2012	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**49**	< 3.3 U	< 3.3 U	**6.9**	< 3.3 U	< 6.7 U
	9/26/2013	0.47 J	< 1.0 U	< 1.0 U	< 1.0 U	0.77 J	< 1.0 U	**45**	< 1.0 U	< 1.0 U	**5.6**	< 1.0 U	< 2.0 U
	10/10/2014	0.71 J	< 1.4 U	< 1.4 U	< 1.4 U	1.1 J	< 1.4 U	**36**	< 1.4 U	< 1.4 U	3.7	< 1.4 U	< 2.9 U
	11/3/2015	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**30**	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 2.0 U
	8/17/2016	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**31**	< 1.0 U	< 1.0 U	2.6	< 1.0 U	< 2.0 U
GM-69	5/3/2007	< 12 U	8.7 J	< 12 U	< 12 U	29	< 12 U	**6.5 J**	< 12 U	< 12 U	**300**	< 12 U	< 24 U
GM-70	5/3/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 2.0 U
GM-73	10/23/2007	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	**160**	< 6.7 U	< 6.7 U	**22**	< 6.7 U	< 13 U
GM-74D	9/27/2007	< 8.0 U	< 8.0 U	< 8.0 U	< 8.0 U	< 8.0 U	< 8.0 U	**250**	< 8.0 U	< 8.0 U	**130**	< 8.0 U	< 16 U
	4/9/2010	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	8.0	< 2.5 U	**98**	< 2.5 U	< 2.5 U	**50**	< 2.5 U	< 5.0 U
	8/24/2015	0.98 J	< 1.0 U	< 1.0 U	< 1.0 U	3.0	< 1.0 U	**26**	< 1.0 U	< 1.0 U	**5.3**	1.3	< 2.0 U
GM-75D	9/26/2007	< 50 U	< 50 U	< 50 U	< 50 U	24 J	< 50 U	**470**	< 50 U	< 50 U	**1700 J**	< 50 U	< 100 U
	10/6/2008	< 33 U	< 33 U	< 33 U	< 33 U	**120**	< 33 U	**220**	< 33 U	< 33 U	**750**	< 33 U	< 67 U
	11/16/2009	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	15	< 5.0 U	**320**	< 5.0 U	< 5.0 U	**210**	< 5.0 U	< 10 U
	4/8/2010	< 9.1 U	< 9.1 U	< 9.1 U	< 9.1 U	19	< 9.1 U	**320**	< 9.1 U	< 9.1 U	**200**	< 9.1 U	< 18 U
	9/29/2010	< 9.1 U	< 9.1 U	< 9.1 U	< 9.1 U	12	< 9.1 U	**260**	< 9.1 U	< 9.1 U	**190**	< 9.1 U	< 18 U
	9/30/2011	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	12	< 4.0 U	**200**	< 4.0 U	< 4.0 U	**180**	**2.1 J**	< 8.0 U
	9/7/2012	< 11 U	< 11 U	< 11 U	< 11 U	31	< 11 U	**150**	< 11 U	< 11 U	**150**	**4.7 J**	< 22 U
	9/27/2013	< 1.0 U	0.40 J	0.28 J	< 1.0 U	25	< 1.0 U	**180**	< 1.0 U	0.58 J	**180**	**3.2**	< 2.0 U
	12/4/2014	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	11	< 5.7 U	**190**	< 5.7 U	< 5.7 U	**180**	< 5.7 U	< 11 U
	12/8/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	22	< 1.0 U	**140**	< 1.0 U	0.38 J	**150**	0.37 J	< 2.0 U
	8/24/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	9.6	< 2.0 U	**200**	< 2.0 U	< 2.0 U	**220**	< 2.0 U	< 4.0 U
GM-76D	9/23/2007	< 1.0 U	0.30 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.63 J	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 2.0 U
	10/9/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.24 J	< 1.0 U	**35**	< 1.0 U	< 1.0 U	**8.5**	< 1.0 U	< 2.0 U
	8/24/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	**27**	< 1.0 U	< 1.0 U	**6.5**	< 1.0 U	< 2.0 U
	10/30/2015	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**49**	< 2.0 U	< 2.0 U	**6.9**	< 2.0 U	< 4.0 U
GM-82	2/26/2008	< 2.0 U	2.3	< 2.0 U	< 2.0 U	47	< 2.0 U	**60**	< 2.0 U	1.9 J	**91**	< 2.0 U	< 4.0 U
	10/2/2008	1.0 J	2.4 J	0.64 J	< 3.3 U	46	< 3.3 U	**51**	< 3.3 U	2.0 J	**100**	< 3.3 U	< 6.7 U
	9/26/2013	0.49 J	1.4	0.60 J	< 1.0 U	41	< 1.0 U	**20**	< 1.0 U	1.3	**56**	**7.4**	< 2.0 U
	12/11/2015	< 2.0 U	1.5 J	< 2.0 U	< 2.0 U	30	< 2.0 U	**23**	< 2.0 U	1.2 J	**57**	0.63 J	< 4.0 U
GM-83D	2/26/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 2.0 U
	10/2/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	0.30 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 2.0 U
	11/11/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.1**	< 2.0 U
	9/22/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 2.0 U
	9/7/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	< 2.0 U
	10/9/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.6**	< 2.0 U
	10/30/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.0**	< 2.0 U
	8/19/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.1**	< 2.0 U

Table D-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-84	2/26/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.57 J	< 1.0 U	**5.5**	< 1.0 U	< 2.0 U
	10/2/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.6**	< 1.0 U	< 2.0 U
	11/16/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.3**	< 1.0 U	< 2.0 U
	1/27/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.4**	< 1.0 U	< 2.0 U
	9/23/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.9**	< 1.0 U	< 2.0 U
	9/29/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.7**	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.9	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 2.0 U
	10/8/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.9	< 1.0 U	< 2.0 U
	10/30/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5	< 1.0 U	< 2.0 U
	8/17/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
HR-13	9/15/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/29/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	11/14/2001	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/30/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/16/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/21/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	10/25/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/25/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	8/26/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
HR-14	9/15/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/30/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	8/26/2015	< 1.0 U	4.0	< 1.0 U	< 1.0 U	11	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.0**	0.40 J	< 2.0 U
HR-15	9/15/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U
	9/29/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	< 1.0 U
	11/14/2001	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.86	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/30/2002	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/17/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	0.29 J	**14**	< 1.0 U
	9/21/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	0.38 J	**19**	< 1.0 U
	10/25/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.40 J	**14**	< 2.0 U
	9/25/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.50 J	**13**	< 2.0 U
	9/26/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	**15**	< 2.0 U
	9/29/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.47 J	**9.7**	< 2.0 U
	11/13/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.70 J	**6.5**	< 2.0 U
	9/24/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.60 J	**3.8**	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.78 J	**2.4**	< 2.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.87 J	1.1	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	1.4	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.71 J	1.9	< 2.0 U
	11/4/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	0.78 J	< 2.0 U
	8/19/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	0.90 J	< 2.0 U
RMW-85	9/26/2012	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	**280**	< 10 U	< 10 U	**120**	< 10 U	< 20 U
	9/27/2013	0.19 J	0.84 J	0.26 J	< 1.0 U	60	< 1.0 U	**61**	< 1.0 U	0.48 J	**95**	0.31 J	< 2.0 U
	10/9/2014	< 2.0 U	< 2.0 U	< 2.0 U	0.75 J	55	< 2.0 U	**40**	< 2.0 U	1.8 J	**78**	**5.0**	< 4.0 U
	12/8/2015	< 1.0 U	0.41 J	< 1.0 U	< 1.0 U	18	< 1.0 U	**49**	< 1.0 U	< 1.0 U	**82**	0.31 J	< 2.0 U
	8/24/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	18	< 2.0 U	**62**	< 2.0 U	< 2.0 U	**110**	< 2.0 U	< 4.0 U
RMW-86	9/26/2012	12	13	1.6 J	< 6.7 U	52	< 6.7 U	**48**	< 6.7 U	1.6 J	**190**	< 6.7 U	< 13 U
	9/26/2013	15	16	2.3	< 1.0 U	**110**	< 1.0 U	**41**	< 1.0 U	2.9	**190**	1.3	< 2.0 U
	10/8/2014	9.4	7.6	< 6.7 U	< 6.7 U	33	< 6.7 U	**29**	< 6.7 U	< 6.7 U	**140**	< 6.7 U	< 13 U
	12/8/2015	6.1	11	1.6	< 1.0 U	37	< 1.0 U	**40**	< 1.0 U	1.3	**110**	0.45 J	< 2.0 U
	8/17/2016	7.9	13	1.9	< 1.0 U	39	< 1.0 U	**59**	< 1.0 U	1.6	**120**	0.42 J	< 2.0 U
RMW-87	9/26/2012	< 1.0 U	15	< 1.0 U	0.13 J	23	< 1.0 U	< 1.0 U	0.39 J	1.3	**7.5**	0.93 J	< 2.0 U
	9/26/2013	< 1.0 U	18	< 1.0 U	< 1.0 U	43	< 1.0 U	< 1.0 U	< 1.0 U	2.2	**9.8**	1.3	< 2.0 U
	10/9/2014	< 2.2 U	13	< 2.2 U	< 2.2 U	62	< 2.2 U	< 2.2 U	< 2.2 U	2.7	**10**	< 2.2 U	< 4.4 U
	11/5/2015	< 1.0 U	7.8	< 1.0 U	< 1.0 U	58	< 1.0 U	< 1.0 U	< 1.0 U	2.1	**10**	0.42 J	< 2.0 U
	8/19/2016	< 1.0 U	7.8	< 1.0 U	< 1.0 U	43 K	< 1.0 U	< 1.0 U	< 1.0 U	2.3	**11**	0.35 J	< 2.0 U

Table D-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
Downgradient of the Site													
DN-13	11/14/2001	1.1	2.5	< 1.0 U	< 1.0 U	6.2	< 1.0 U	< 1.0 U	< 1.0 U	0.37J	5.0	1.2	< 1.0 U
	9/27/2002	1.1	2.5	< 1.0 U	< 1.0 U	7.3	< 1.0 U	< 1.0 U	< 1.0 U	0.48J	**6.1**	1.3	< 1.0 U
	9/22/2003	1.1	2.4	< 1.0 U	< 1.0 U	6.8	< 1.0 U	0.31 J	< 1.0 U	0.4 J	**6.4**	1.1	< 1.0 U
	9/16/2004	0.84 J	2.2	< 1.0 U	< 1.0 U	6.7	< 1.0 U	0.44 J	< 1.0 U	0.49 J	**6.8**	**2.1**	< 1.0 U
	10/20/2005	1.5	2.0	< 1.0 U	< 1.0 U	5.5	< 1.0 U	0.38 J	< 1.0 U	< 1.0 U	**7.2**	**2.6**	< 2.0 U
	9/27/2006	0.51 J	1.5	< 1.0 U	< 1.0 U	6.1	< 1.0 U	0.33 J	< 1.0 U	0.41 J	**5.7**	**2.3**	< 2.0 U
	9/19/2007	0.48 J	2.0	< 1.0 U	< 1.0 U	6.4	< 1.0 U	< 1.0 U	< 1.0 U	0.4 J	3.3	**2.6**	< 2.0 U
	9/24/2008	0.63 J	< 1.7 U	< 1.0 U	< 1.0 U	6.2	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	4.5	1.4	< 2.0 U
	11/11/2009	0.77 J	2.1	< 1.0 U	< 1.0 U	7.9	< 1.0 U	0.33 J	< 1.0 U	0.50 J	**6.5**	1.7	< 2.0 U
	9/22/2010	0.48 J	1.6	< 1.0 U	< 1.0 U	6.9	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	5.0	1.3	< 2.0 U
	9/28/2011	< 1.0 U	1.5	< 1.0 U	< 1.0 U	6.3	< 1.0 U	0.40 J	< 1.0 U	0.38 J	4.8	1.3	< 2.0 U
	9/6/2012	0.99 J	2.0	< 1.0 U	< 1.0 U	7.5	< 1.0 U	0.76 J	< 1.0 U	0.47 J	**7.9**	1.2	< 2.0 U
	9/27/2013	0.93 J	1.9	< 1.0 U	< 1.0 U	6.9	< 1.0 U	0.58 J	< 1.0 U	0.55 J	**8.4**	1.1	< 2.0 U
	12/4/2014	0.86 J	1.6	< 1.0 U	< 1.0 U	5.9	< 1.0 U	3.5	< 1.0 U	0.41 J	**10**	0.79 J	< 2.0 U
	11/5/2015	0.81 J	1.3	< 1.0 U	< 1.0 U	5.5	< 1.0 U	2.5	< 1.0 U	0.42 J	**9.0**	0.70 J	< 2.0 U
	8/25/2016	0.97 J	1.3	< 1.0 U	< 1.0 U	5.6	< 1.0 U	1.5	< 1.0 U	0.37 J	**8.1**	< 1.0 U	< 2.0 U
	8/15/2017	0.93 J	1.5	< 1.0 U	< 1.0 U	5.8	< 1.0 U	2.1	< 1.0 U	0.43 J	**8.0**	0.86 J	< 2.0 U
	7/24/2018	0.52 J	1.1	< 1.0 U	< 1.0 U	4.7	< 1.0 U	1.4	< 1.0 U	0.28 J	**6.2**	0.53 J	< 2.0 U
	7/11/2019	0.66 J	1.0	< 1.0 U	< 1.0 U	4.4	< 1.0 U	0.87 J	< 1.0 U	0.23 J	**5.6**	0.30 J	< 2.0 U
	7/28/2020	0.56 J	0.96 J	< 1.0 U	< 1.0 U	4.2	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**5.6**	< 1.0 U	< 2.0 U
GM-1	9/28/1999	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	5.2	< 1.0 U	**31**	< 1.0 U	< 1.0 U
	10/2/2000	2.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 1.0 U	**37**	< 1.0 U	< 1.0 U
	11/14/2001	0.80J	0.29J	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.3	< 1.0 U	< 0.50 U	**19**	< 1.0 U	< 1.0 U
	10/1/2002	1.3 J	0.48 J	< 1.4 U	< 1.4 U	0.95	< 1.4 U	2.3	< 1.4 U	< 0.72 U	**39**	< 1.4 U	< 1.4 U
	10/2/2003	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.0	< 1.0 U	< 0.50 U	**34**	< 1.0 U	< 1.0 U
	9/21/2004	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.1	< 1.0 U	< 0.50 U	**35**	< 1.0 U	< 1.0 U
	10/25/2005	0.95 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**34**	< 1.0 U	< 2.0 U
	9/20/2006	0.76 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**34**	< 1.0 U	< 2.0 U
	9/18/2007	0.74 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	**32**	< 1.0 U	< 2.0 U
	9/24/2008	0.69 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	**31**	< 1.0 U	< 2.0 U
	9/5/2012	0.42 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	**26**	< 1.0 U	< 2.0 U
	9/25/2013	0.41 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.83 J	< 1.0 U	< 1.0 U	**21**	< 1.0 U	< 2.0 U
GM-3	9/28/1999	1.7	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**7.5**	< 1.0 U	< 1.0 U
	10/2/2000	1.0	2.1	< 1.0 U	< 1.0 U	8.3	< 1.0 U	1.5	< 1.0 U	1.1	**9.4**	< 1.0 U	< 1.0 U
	11/14/2001	0.16 J	0.95 J	< 1.0 U	< 1.0 U	2.6	< 1.0 U	0.48 J	< 1.0 U	0.25 J	2.9	< 1.0 U	< 1.0 U
	10/1/2002	0.74 J	1.8	< 1.0 U	< 1.0 U	8.9	< 1.0 U	1.4	< 1.0 U	1.2	**9.5**	0.63 J	< 1.0 U
	10/2/2003	0.96 J	1.6	< 1.0 U	< 1.0 U	5.5	0.26 J	1.7	< 1.0 U	0.77	**12**	< 1.0 U	< 1.0 U
	9/21/2004	1.0	1.8	< 1.0 U	< 1.0 U	4.9	< 1.0 U	2.0	< 1.0 U	0.75	**13**	< 1.0 U	< 1.0 U
	10/25/2005	0.83 J	1.6	< 1.0 U	< 1.0 U	4.7	< 1.0 U	2.0	< 1.0 U	0.66 J	**14**	< 1.0 U	< 2.0 U
	9/22/2006	0.59 J	2.0 J	< 1.0 UJ	< 1.0 UJ	6.1 J	< 1.0 UJ	2.1 J	< 1.0 UJ	1.0 J	**13 J**	0.27 J	< 2.0 UJ
	9/18/2007	0.67 J	1.5	< 1.0 U	< 1.0 U	3.8	< 1.0 U	1.9	< 1.0 U	0.77 J	**14**	< 1.0 U	< 2.0 U
	9/24/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 2.0 U
	9/25/2013	0.54 J	0.86 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	2.3	< 1.0 U	0.29 J	**15**	< 1.0 U	< 2.0 U
GM-4	9/28/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13.4**	< 1.0 U	< 1.0 U
GM-5	9/28/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.9	< 1.0 U	1.3	< 1.0 U	< 1.0 U
GM-9	9/24/1999	1.0	< 1.0 U	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**14**	< 1.0 U	< 1.0 U
	10/3/2000	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**17**	< 1.0 U	< 1.0 U
	11/14/2001	0.48J	0.58J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.38 J	< 1.0 U	< 0.50 U	**8.6**	< 1.0 U	< 1.0 U
	9/30/2002	0.99J	0.48J	< 1.0 U	< 1.0 U	0.66	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**16**	< 1.0 U	< 1.0 U
	9/24/2003	1.3	0.45 J	< 1.0 U	< 1.0 U	0.56	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**20**	< 1.0 U	< 1.0 U
	9/21/2004	1.1	0.6 J	< 1.0 U	< 1.0 U	0.97	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**16**	< 1.0 U	< 1.0 U
	10/26/2005	0.85 J	0.59 J	< 1.0 U	< 1.0 U	0.99 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 2.0 U
	9/25/2006	0.44 J	0.48 J	< 1.0 U	< 1.0 U	0.85 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.6**	< 1.0 U	< 2.0 U
	9/19/2007	1.2	0.48 J	< 1.0 U	< 1.0 U	0.71 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**18**	< 1.0 U	< 2.0 U
	9/24/2008	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**18**	< 1.0 U	< 2.0 U
	9/22/2010	1.0	0.35 J	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	**17 J**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	0.50 J	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 2.0 U
	9/5/2012	24	<22 U	<22 U	<22 U	7.9 J	<22 U	<22 U	<22 U	<22 U	**340**	<22 U	<44 U
	9/26/2012	1.1	0.24 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**16**	< 1.0 U	< 2.0 U
	9/25/2013	1.4	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**19**	< 1.0 U	< 2.0 U
	10/6/2014	1.2	0.39 J	< 1.0 U	< 1.0 U	0.54 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**17**	< 1.0 U	< 2.0 U
	12/11/2015	0.92 J	< 1.0 U	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
	8/17/2016	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 2.0 U
	08/15/2017	0.84 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
	7/24/2018	0.49 J	0.18 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**9.1**	< 1.0 U	< 2.0 U
	7/11/2019	0.51 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.0**	< 1.0 U	< 2.0 U
	7/20/2020	0.90 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 2.0 U

Table D-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
GM-11	9/24/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	**15**	< 1.0 U	< 1.0 U
	10/2/2000	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.0	< 1.0 U	< 1.0 U	**41**	< 1.0 U	< 1.0 U
	11/14/2001	0.33J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.0	< 1.0 U	< 0.50 U	**12**	< 1.0 U	< 1.0 U
	10/1/2002	1.0	0.34J	< 1.0 U	< 1.0 U	0.62	< 1.0 U	2.2	< 1.0 U	< 0.50 U	**35**	< 1.0 U	< 1.0 U
	9/24/2003	0.96 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.2	< 1.0 U	< 0.50 U	**33**	< 1.0 U	< 1.0 U
	9/21/2004	0.89 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.1	< 1.0 U	< 0.50 U	**33**	< 1.0 U	< 1.0 U
	10/26/2005	0.75 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	**32**	< 1.0 U	< 2.0 U
	9/25/2006	0.75 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	**34**	< 1.0 U	< 2.0 U
	9/18/2007	0.6 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	**35**	< 1.0 U	< 2.0 U
	9/24/2008	0.47 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	**31**	< 1.0 U	< 2.0 U
	11/12/2009	0.47 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	**37**	< 1.0 U	< 2.0 U
	9/22/2010	0.36 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	**31**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	1.1 J	< 1.4 U	< 1.4 U	**24**	< 1.4 U	< 2.9 U
	9/5/2012	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	0.39 J	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**25**	< 1.0 U	< 2.0 U
	9/25/2013	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	0.40 J	< 1.0 U	1.3	< 1.0 U	< 1.0 U	**23**	< 1.0 U	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	**17**	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	**13**	< 1.0 U	< 2.0 U
	8/18/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 2.0 U
GM-13	9/24/1999	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 1.0 U	**31**	< 1.0 U	< 1.0 U
GM-14	9/24/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
GM-15	9/24/1999	< 1.0 U	2.4	< 1.0 U	< 1.0 U	4.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.1	< 1.0 U	< 1.0 U
	10/2/2000	< 1.0 U	2.3	< 1.0 U	< 1.0 U	2.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 1.0 U
	11/14/2001	< 1.0 U	1.4	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	4.9	< 1.0 U	< 1.0 U
	9/27/2002	< 1.0 U	1.6	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	4.7	< 1.0 U	< 1.0 U
	9/22/2003	< 1.0 U	1.7	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**5.9**	< 1.0 U	< 1.0 U
	9/20/2004	< 1.0 U	1.8	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**5.8**	< 1.0 U	< 1.0 U
	10/26/2005	< 1.0 U	1.7	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.9**	< 1.0 U	< 2.0 U
	9/18/2006	< 1.0 U	1.6	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.3**	< 1.0 U	< 2.0 U
	9/25/2007	< 1.0 U	1.5	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.1**	< 1.0 U	< 2.0 U
	9/30/2008	< 1.0 U	1.1	< 1.0 U	< 1.0 U	0.79 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.2**	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	1.2	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.5**	< 1.0 U	< 2.0 U
	9/23/2010	< 1.0 U	1.2	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.5**	< 1.0 U	< 2.0 U
	9/29/2011	< 1.0 U	1.1	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.7	< 1.0 U	< 2.0 U
	9/5/2012	0.23 J	1.3	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	0.33 J	0.31 J	**6.1**	< 1.0 U	< 2.0 U
	9/25/2013	< 1.0 U	1.3	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.5	0.19 J	< 2.0 U
	10/7/2014	< 1.0 U	1.5	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	0.42 J	4.1	0.38 J	< 2.0 U
	11/4/2015	< 1.0 U	1.8	< 1.0 U	< 1.0 U	7.7	< 1.0 U	< 1.0 U	< 1.0 U	0.77 J	**6.6**	0.47 J	< 2.0 U
	8/18/2016	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	7/31/2017	< 1.0 U	2.1	< 1.0 U	< 1.0 U	7.7	< 1.0 U	< 1.0 U	< 1.0 U	0.77 J	**5.7**	0.58 J	< 2.0 U
	7/24/2018	< 1.0 U	1.9	< 1.0 U	< 1.0 U	6.6	< 1.0 U	< 1.0 U	< 1.0 U	0.66 J	**5.8**	0.50 J	< 2.0 U
	7/8/2019	< 1.0 U	2.3	< 1.0 U	< 1.0 U	9.4	< 1.0 U	< 1.0 U	< 1.0 U	0.68 J	**5.7**	0.68 J	< 2.0 U
	7/29/2020	< 1.0 U	2.6	< 1.0 U	< 1.0 U	12	< 1.0 U	< 1.0 U	< 1.0 U	0.64 J	4.5	0.56 J	< 2.0 U
GM-20D	9/24/1999	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	10/3/2000	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	11/14/2001	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/30/2002	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/22/2003	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/21/2004	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	10/26/2005	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/26/2006	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/19/2007	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/25/2008	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	11/13/2009	< 1.0 U	2.0	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	< 1.0 U	0.75 J	**6.3**	0.69 J	< 2.0 U
	9/22/2010	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	**6.5**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 2.0 U
	9/5/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.7	< 1.0 U	< 2.0 U
	9/25/2013	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	**5.3**	< 1.0 U	< 2.0 U
	10/6/2014	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	3.1	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
	8/19/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 2.0 U
	08/15/2017	0.23 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	7/24/2018	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	0.63 J	< 1.0 U	< 2.0 U
	7/11/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	< 1.0 U	< 1.0 U	0.48 J	< 1.0 U	< 2.0 U
	7/29/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
GM-56	9/14/2006	0.35 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.57 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/5/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.4	0.47 J	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J
GM-65D	5/2/2007	0.40 J	1.4	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	1.3	< 1.0 U	< 2.0 U
	1/21/2008	0.32 J	0.94 J	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 2.0 U
	1/27/2010	0.88 J	1.2	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 2.0 U
	9/14/2018	1.7	0.33 J	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.0	< 1.0 U	< 2.0 U
GM-77D	9/27/2007	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	**45**	< 1.4 U	< 1.4 U	< 1.4 U	< 1.4 U	< 2.9 U
	1/28/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**18**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**11**	0.17 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**12**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/8/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**14**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	11/3/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**18**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	8/17/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**17**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U

Table D-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes
	MCL	200	--	7	5	70	700	5	1000	100	5	2	10,000
MT-69 (1)	9/24/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/3/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/15/2001	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/30/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/1/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/27/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/24/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/27/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) - Well abandoned.
1,1,1-TCA - 1,1,1-Trichloroethane.
1,1-DCA - 1,1-Dichloroethane.
1,1-DCE - 1,1-Dichloroethene.
B - Compound was found in the blank and sample.
BOLD - Result above MCL.
cis-1,2-DCE - cis-1,1-Dichloroethene.
F1 - MS and/or MSD recovery exceeds control limits.
F2 - MS/MSD Relative Percent Difference exceeds control limits.
J - Value is estimated.
K - The compound was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased high.
MCL - Maximum Contaminant Level.
PCE - Tetrachloroethene.
trans-1,2-DCE - trans-1,2-Dichloroethene.
TCE - Trichloroethene.
U - Constituent not detected above laboratory reporting limit shown.
UB - Analyte considered non-detect at listed value due to associated blank contamination.
ug/L - Micrograms per Liter.
VOCs - Volatile Organic Compounds.
* - LCS or LCSD is outside acceptable limits.

Appendix E

2020 Supplemental Annual Report

MEMO

ARCADIS Design & Consultancy for natural and built assets

To:
Brian Gitzinger, Ohio EPA

Copies:
Pam Barnett, RACER Trust
Molly Finn, U.S. EPA

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From:
Arcadis, Inc.

Date:
February 25, 2021

Arcadis Project No.:
30075938.0004B

Subject:
2020 Supplementary Annual Report

This Supplementary Annual Report was prepared to summarize the groundwater evaluations for the closed North Settling Lagoon (NSL) and closed South Settling Lagoon (SSL) at the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) Moraine Facilities site in Moraine, Ohio (Site). The objective of the Supplemental Annual Report is to evaluate the potential for hazardous constituents from the closed NSL and SSL to impact groundwater.

The property line interim measure, Phase 1 Dynamic Groundwater Recirculation (DGR™), was implemented within the closed SSL footprint in 2019 to reduce site-specific volatile organic compounds (VOCs) in groundwater within the Riverview Plat neighborhood to concentrations below the MCLs within 5 years of operation. The direct benefit of addressing total site-specific VOCs within the neighborhood is a reduced vapor intrusion risk for structures within the neighborhood that have not provided access for installation of a vapor intrusion mitigation system. This interim measure includes upgradient extraction wells (EW-1, EW-2, and EW-3), located in the central portion of the closed SSL, and treated water injection wells (IW-1, IW-2, IW-3, and IW-4), located on the southern edge of the closed SSL. The active groundwater remediation in this area interferes with the evaluation of potential impacts to groundwater from the closed SSL. The below evaluation summarizes these implications.

OHIO EPA COMMENTS AND RESPONSES

On June 24, 2020, the Ohio Environmental Protection Agency (Ohio EPA) provided comments regarding the 2019 Supplemental Annual Groundwater Monitoring Report (Ohio EPA, 2020). In this letter, a request was made to provide a discussion as to why water levels were not collected during low flow sampling of

wells W-2-S, W-3-S, and W-4-S, and an explanation as to why well HR-1 was not included in the 2019 sampling. A response letter was sent to the Ohio EPA (RACER Trust, 2020) to address those comments summarized below.

During the 2019 annual groundwater sampling field event, initial depth-to-water measurements were collected prior to sampling at the wells in the closed South Settling Lagoon (SSL). Those depth to water measurements were included in the 2019 Supplemental Annual Report. Water levels during low-flow purging were not collected at monitoring wells W-2-S, W-3-S, and W-4-S due to an equipment malfunction in the field. Past data has indicated that at low-flow rates, drawdown has stabilized in these monitoring wells along with the other parameters collected. Depth-to-water measurements were recorded on groundwater sampling logs during the July 2020 annual groundwater sampling event (Attachment E-1) and will be collected during future groundwater sampling events.

Monitoring well HR-1 was included in the annual groundwater monitoring program for 2020. Given the robust data set for the closed SSL, sampling of this well may not be necessary during future sampling events. A discussion of HR-1 data is provided in Section 6 below. The proposed groundwater monitoring network is data driven and communicated in the 2020 Groundwater Monitoring Report (Report) and the Conclusions and Recommendations of this Supplemental Report.

GROUNDWATER SAMPLING PROGRAM

The Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc., 2002) was developed to meet the objectives of the Ohio EPA post-closure monitoring for the closed NSL and SSL. For 2020, the site-specific VOC groundwater data is summarized in Table 3 of the Report. The following sections summarize collection of the annual groundwater elevation measurements, groundwater monitoring, and statistical evaluation.

Groundwater samples were analyzed for the site-specific VOC parameter list using SW846 Method 8260B. This parameter list was developed after evaluating data from the September 1999 baseline groundwater sampling event and the one-time sampling event conducted in September/October 2000 (which included analysis of Appendix IX VOCs, cis-1,2-DCE, SVOCs, and metals) as part of the Former Oil House Area interim measures. The site-specific VOCs include benzene, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE, trans-1,2-dichloroethene (trans-1,2-DCE), ethylbenzene, tetrachloroethene (PCE), toluene, 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), vinyl chloride, and xylenes. The groundwater samples were submitted to Eurofins TestAmerica Laboratories, Inc. in North Canton, Ohio.

The following sections include the information that is required by the Ohio EPA.

SECTIONS 1 THROUGH 5 – EXCEL WORKSHEETS

The Excel Worksheets containing required information regarding the facility, wells, sampling, parameters, and groundwater data are included in **Attachment E-1**.

SECTION 6 – OTHER REQUIRED INFORMATION:

1. **Signed Certification Statement per OAC Rules 3745-50-58(K) and 3745-50-42**

OHIO EPA

SUPPLEMENTARY ANNUAL REPORT

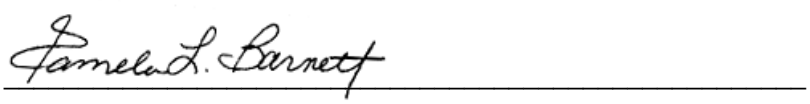
FOR 2020 GROUNDWATER

MONITORING INFORMATION

February 25, 2021

Prepared by Arcadis

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Pamela L. Barnett

Cleanup Manager

RACER Trust

2. Groundwater Flow Data

Groundwater levels for the upper aquifer well network associated with the closed NSL and SSL were measured on July 29, 2020. Groundwater levels were measured in accordance with procedures defined in the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002), Standard Operating Procedure (SOP) #4.

Monitoring results indicate that groundwater flow is generally from northeast to southwest. The potentiometric surface for the closed NSL and SSL are illustrated in **Figures E-1** and **E-2**, respectively.

The horizontal hydraulic gradient within the upper aquifer in the closed NSL area were consistent with past values at 5.3×10^{-4}. These calculations were not completed for the closed SSL due to the operation of Phase 1 DGR™ which induces hydraulic gradient control with extraction and treated water injection. According to the 2012 Corrective Measures Proposal (Arcadis, 2012), using the range in hydraulic conductivity values measured for the sand and gravel facies of the upper aquifer (180 to 3,500 feet/day), long-term site-wide horizontal hydraulic gradient of 4.7×10^{-4}, and effective porosity of 10%, the estimated advective groundwater velocity ranges from 0.8 to 16 feet/day for most of the upper aquifer.

3. Sampling Data and 4. Lab Data

In 2020, the following wells were sampled to assess the groundwater monitoring program objectives:

- Closed NSL: HR-4, W-2-N, W-3-N, and W-4-N
- Closed SSL: HR-17, W-2-S, W-3-S, and W-4-S

A summary of the 2020 groundwater monitoring activities, including the number of monitoring wells and analytical parameters, is presented on Table 1 in the Report. Well construction data for the monitoring wells used in the program are presented in Table 4 in the Report.

Groundwater samples were collected from the specified wells using the low-flow methodology and following procedures outlined in SOP #21 (Arcadis G&M, Inc., 2002). Field parameters including pH, specific conductance, temperature, oxidation/reduction potential, and dissolved oxygen were measured during purging of each well using a multi-parameter groundwater quality meter connected to a flow-through cell (Appendix B in the Report). The groundwater sampling details are provided on the groundwater sampling forms included in **Attachment E-2**. The analytical results are summarized below and are included in this report as **Attachment E-1** and in Table 2 of the Report.

The groundwater samples were collected and managed under standard chain-of-custody procedures and validated in accordance with the approved Supplemental RFI Work Plan and the RFI Quality Assurance Project Plan (Geraghty & Miller, Inc. 1997) and as presented in the draft Amended Quality Assurance Project Plan (Arcadis, Inc. 2011). The data quality assessment was completed on February 10, 2021 for all samples collected in July 2020 during the annual groundwater sampling event. The review was conducted as a Tier III evaluation and included review of data package completeness as required under U.S. EPA Region III M3 validation. No problems were identified during the data review. The data validation report is provided as **Attachment E-3,** historical data table as **Attachment E-4**, and laboratory results as **Attachment E-5**.

Closed NSL

- Concentrations of site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring wells HR-4, W-2-N, and W-3-N in 2020.
- Concentrations of PCE and vinyl chloride in monitoring well W-4-N have been relatively low or below reporting limits since 1999. TCE had a peak concentration of 15 µg/L in 2009 and has remained relatively consistent, with a concentration of 6.9 µg/L in July 2020. Concentrations of cis-1,2-DCE have also remained relatively consistent with a concentration of 8.2 µg/L in July 2020. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Closed SSL

- Concentrations of PCE in monitoring well HR-17 have been relatively consistent since 2011 with a concentration of 160 µg/L in July 2020. Concentrations of the other site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring well HR-17.
- Concentrations of PCE in monitoring well W-2-S were relatively consistent prior to 2019 when the concentration increased to 20 µg/L. In July 2020, the concentration decreased to 6.3 µg/L. All other concentrations of site-specific VOCs at W-2-S were detected at relatively low concentrations or below reporting limits in 2019.
- The PCE concentration at monitoring well W-3-S in July 2020 was detected at 110 µg/L. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits in 2020.
- The PCE and TCE concentrations detected at monitoring well W-4-S in July 2020 were 37 µg/L and 9.1 µg/L, respectively. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits in 2020.

Well HR-1 Data Summary

HR-1 was sampled in 2020 as part of the annual groundwater sampling program for the closed SSL. Concentrations of PCE and TCE at HR-1 in 2020 were 120 µg/L and 25 µg/L, respectively. The

concentration of PCE has increased slightly since 2018 (99 µg/L), while the concentration of TCE appears to be on a decreasing trend since the 2015 peak of 210 µg/L. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits in 2020 and consistent with historic sample results.

Monitoring well HR-1 has been historically sampled from 1999 through 2008 and consistently has been sampled since 2013 for additional upgradient data for the closed SSL to support verification of increasing trends at upgradient well HR-17 and downgradient well W-4-S. HR-1 data has been supplied for upgradient concentration comparison purposes only, and not used as part of the statistical evaluations in the past. The removal of HR-1 from the annual groundwater monitoring program for 2019 was based on review of historical data and current groundwater concentration distribution. The 2020 concentration result confirmed this understanding. HR-1 is located approximately 1,000 feet upgradient from the closed SSL and on the margins of the identified Site plume centerline. Well HR-17 is situated immediately upgradient of the closed SSL, thus providing a more representative upgradient well for other source-generated groundwater concentrations. HR-1 may be sampled in future sampling events to assist in the determination of groundwater VOC concentrations within the plume.

5. Tables

The statistical results described in the below Section 7 are provided as **Tables E-1** and **E-2**.

6. Maps

The position of the wells relative to the lagoons and the potentiometric surface for the closed NSL and closed SSL are illustrated in **Figures E-1** and **E-2**, respectively.

7. Calculations

Calculations are not applicable.

SECTION 7 STATISTICAL EVALUATION

Methods

The 2020 groundwater monitoring program was completed to meet the objectives of RCRA corrective action and the post-closure groundwater monitoring requirements for the closed lagoons. The program monitors potentially significant contributions of hazardous waste constituents to existing groundwater quality from the closed lagoons. To determine if the closed lagoons may be significant contributors of hazardous waste constituents to existing groundwater concentrations, monitoring data collected from the designated post-closure monitoring wells located downgradient of each of the closed lagoons are evaluated for temporal trends. This assessment includes, as an initial approach, the application of linear regression to determine if the concentration data for site-specific VOCs suggests a strong positive correlation with time as indicated by the coefficient of determination (R^2). Further statistical assessment of these well constituent concentrations was performed using the Mann-Kendall trend test and the Sen's slope estimator test (**Table E-1**).

Results

Data considered in the evaluation included results through the July 2020 monitoring event and data ranging back to the initial post-closure monitoring event conducted in November 2001. Current and historical data used in the statistical analysis is included in **Attachment E-4**. Laboratory reports are included as **Attachment E-5**. For the Mann-Kendall trend analysis, values below the reporting limit were replaced by a common value lower than the minimum detected value equal to half the minimum reporting limit for each

dataset (USEPA, 2009). If half the minimum reporting limit was greater than the minimum detected value, then half the minimum detected value was assigned. This non-detect replacement ensures that any pair of tied values or any pair of non-detects is simply given a score of zero in the calculation of the Mann-Kendall statistic *S*. For consistency in data analysis, the same substitution method is used for the Sen's slope estimator and linear regression analyses. Field duplicate results were not included.

As proposed in the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc., 2002), post-closure monitoring data collected from those wells assigned to the closed lagoons were reviewed for temporal trends. Summary statistics and results from the statistical trend tests for each dataset are presented in **Table E-1**. A summary matrix of trend test results is presented in **Table E-2**. The data plots for key constituents are provided on **Figure E-3** for the closed NSL and **Figure E-4** for the closed SSL. Individual time series plots for each dataset together with results from the Mann-Kendall and Sen's slope estimator trend tests are presented in **Figures E-5 to E-23**.

Closed NSL

For the wells used to assess conditions at the closed NSL, the Mann-Kendall trend test identified increasing trends for 1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE in downgradient well W-4-N (**Figures E-6**, **E-8**, and **E-9**, respectively). As detailed in **Table E-1**, the magnitude of these trends was also statistically significant using the Sen's slope estimator trend test. The coefficient of determination (R^2) was greater than 0.5 for 1,1-DCA but not for cis-1,2-DCE or trans-1,2-DCE. Concentrations of cis-1,2-DCE and trans-1,2-DCE were much less than the applicable maximum contaminant level (MCL) (no MCL is available for 1,1-DCA). Increasing trends were not observed in downgradient monitoring wells W-2-N and W-3-N.

In the upgradient well HR-04, increasing trends were identified for 1,1,1-TCA and cis-1,2-DCE by the Mann-Kendall trend test (**Figures E-5** and **E-7**, respectively). The magnitude of these trends was statistically significant for 1,1,1-TCA and not statistically significant for cis-1,2-DCE using the Sen's slope estimator trend test. The R^2 was greater than 0.5 for 1,1,1-TCA but not for cis-1,2-DCE. Concentrations of these constituents were significantly less than the MCL.

In summary, the closed NSL data indicate a statistically significant increasing trend in 1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE in downgradient monitoring well W-4-N. The following observations suggest a source (upgradient) other than the closed NSL for 1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE in monitoring well W-4-N:

- The absence of concentrations of cis-1,2-DCE and trans-1,2-DCE greater than MCLs and the low-level detection of 1,1-DCA (7.3 µg/L with no MCL available).
- The fact that these constituents (1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE) are daughter products of VOCs that have been detected upgradient of the closed NSL.

Closed SSL

For the wells used to assess conditions at the closed SSL, increasing trends were identified in the four wells for at least two to five of the following six constituents: 1,1,1-TCA, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, and TCE (**Tables E-1** and **E-2**, **Figure E-4**).

- **Upgradient well HR-17**. A statistically significant increasing trend for PCE was identified with both the Mann-Kendall and Sen's slope estimator trend tests, and the R^2 was greater than 0.5. PCE concentrations over the past five sampling events ranged from 150 µg/L to 180 µg/L which were greater than the MCL of 5 µg/L (**Figure E-16**). A statistically significant increasing trend for 1,1,1-TCA was identified with the Mann-Kendall trend test, but the magnitude was not confirmed with the Sen's slope

estimator test – the R^2 value was also less than 0.5. Concentrations for 1,1,1-TCA were less than the MCL (**Figure E-10**).

- **W-2-S**. A statistically significant increasing trend for cis-1,2-DCE was identified with both the Mann-Kendall and Sen's slope estimator trend tests, but the R^2 was less than 0.5. Statistically significant increasing trends for trans-1,2-DCE and PCE were identified with the Mann-Kendall, but the magnitude was not confirmed by the Sen's slope estimator trend tests – the R^2 values were also less than 0.5. Concentrations for cis-1,2-DCE and trans-1,2-DCE were both less than the MCL (**Figures E-13** and **E-20**, respectively). The most recent concentration for PCE was greater than the MCL (**Figure E-17**)

- **W-3-S**. Statistically significant increasing trends for cis-1,2-DCE, PCE, and TCE were identified by the Mann-Kendall and Sen's slope estimator trend tests, and the R^2 was greater than 0.5 for cis-1,2-DCE and PCE (**Figures E-14** and **E-18**, respectively), but was less than 0.5 for TCE (**Figure E-22**). A statistically significant increasing trend for 1,1-DCA was identified with the Mann-Kendall, but the magnitude was not confirmed by the Sen's slope estimator trend tests, and the R^2 was less than 0.5 (**Figure E-11**). Concentrations for all constituents but PCE were less than the applicable MCL. Concentrations of PCE over the past five sampling events ranged from 19 to 110 µg/L and were greater than the MCL of 5 µg/L.

- **W-4-S**. A statistically significant increasing trend for 1,1-DCA (**Figure E-12**), cis-1,2-DCE (**Figure E-15**), PCE (**Figure E-19**), and TCE (**Figure E-23**) was identified with both the Mann-Kendall and Sen's slope estimator trend tests, and the R^2 was greater than 0.5 for PCE. A statistically significant increasing trend for trans-1,2-DCE was identified with the Mann-Kendall, but the magnitude was not confirmed by the Sen's slope estimator trend tests, and the R^2 was less than 0.5 (**Figure F-21**). Concentrations for all constituents but PCE and TCE were less than the applicable MCL. Concentrations of PCE over the past five sampling events ranged from 37 to 70 µg/L and were greater than the MCL of 5 µg/L. Concentrations of TCE over the past five sampling events ranged from 9.1 to 45 µg/L and were greater than the MCL of 5 µg/L.

The detected concentration for PCE in the upgradient monitoring well HR-17 during the 2020 sampling event was 160 µg/L, and TCE was not detected at or above the laboratory reporting limit. A statistically significant increasing trend for PCE was identified by the Mann-Kendall and Sen's slope estimator trend tests, and the R^2 was greater than 0.5 (**Figure E-16**). A statistically significant increasing trend for TCE was not identified by the Mann-Kendall trend test or the Sen's slope estimator trend tests – the R^2 was less than 0.5 (**Table E-1**). The observed concentration increase identified in downgradient monitoring well W-4-S for PCE and TCE appears to correlate with the concentrations and increasing trends also observed in upgradient well HR-17. The correlations between concentrations in upgradient well HR-17 and downgradient well W-4-S for TCE and PCE were tested statistically using Pearson correlation coefficients and were found to be statistically correlated at the 5% significance level (**Figure E-24**). This correlation suggests a source (upgradient) other than the closed SSL for the TCE and PCE increases. Although the concentrations for cis-1,2-DCE, trans-1,2-DCE, and 1,1-DCA in wells W-4-S and HR-17 are not statistically correlated, the concentrations are still less than applicable drinking water standards. The presence of daughter products 1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE is expected from the natural attenuation processes.

The operation of the Phase 1 DGR™ system since October 2019 may have had an influence on diffuse VOC concentration distribution locally, causing temporary increases or decreases that are not representative of ambient groundwater conditions without operation of an interim measure. It is expected that site-specific VOC concentrations will decrease overall as operation of Phase 1 DGR™ (i.e., extraction

of impacted groundwater upgradient and injection of treated water downgradient) continues. The influence that Phase 1 DGR™ has on groundwater concentrations within the closed SSL area departs from the statistical analysis purpose of evaluating the potential for hazardous constituents to be leaching from the closed waste units. For these reasons, additional statistical analyses while Phase 1 DGR™ is operational are inappropriate.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the monitoring of the closed NSL and SSL showed that the closed lagoons do not appear to be contributing hazardous waste constituents to existing groundwater concentrations in the area. Based on these results, it is proposed that the 2021 groundwater monitoring program for the closed NSL remain consistent with the sampling program for 2020.

As mentioned above, the Phase 1 DGR™ system was installed in October 2019 in the central and southern portion of the closed SSL. The DGR™ system involves hydraulic containment of the dissolved-phase site-specific VOCs with groundwater extraction in combination with treated groundwater injection to enhance advective flushing by creating the dynamic gradients required to reverse the processes of plume development. The objective of the Phase 1 DGR™ system is to reduce site-specific VOCs (from an upgradient source not related to the closed SSL) in groundwater downgradient of the closed SSL to concentrations below MCLs within 5 years of initiating full-scale operation. As stated above, the operation of the Phase 1 DGR™ system since October 2019 may have had an influence on diffuse VOC concentration distribution locally, causing temporary increases or decreases that are not representative of ambient groundwater conditions without operation of an interim measure. It is expected that site-specific VOC concentrations will decrease overall as operation of Phase 1 DGR™ continues. The active groundwater remediation in this area interferes with the evaluation for the potential impacts to groundwater from the closed SSL. It is recommended that the statistical evaluation for the closed SSL be suspended until Phase 1 DGR™ operation has ceased. Note that over the nearly 20 years of monitoring, the closed SSL has not been suggested as a source of hazardous waste constituents. The closed SSL well network will continue to be sampled for monitoring associated with Phase 1 DGR™ and the results will be provided in a future Supplementary Annual Reports.

Tables

Table E-1 – Summary Statistics and Trend Results

Table E-2 – Matrix of Trend Results

Figures

Figure E-1 – Potentiometric Surface – North Settling Lagoon (Upper Aquifer) July 2020

Figure E-2 – Potentiometric Surface – South Settling Lagoon (Upper Aquifer) July 2020

Figure E-3 – North Settling Lagoon (NSL) Data Plots for Key Constituents

Figure E-4 – South Settling Lagoon (SSL) Data Plots for Key Constituents

Figures E-5 through E-23 – Temporal Data Plots of Select Concentrations

Figure E-24 – PCE and TCE Concentrations in SSL Upgradient vs. Downgradient Wells

Attachments

Attachment E-1 – Groundwater Sampling Forms

Attachment E-2 – Ohio EPA eBusiness Excel Worksheet

Attachment E-3 – Laboratory Data Review Report

Attachment E-4 – Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020

Attachment E-5 – Laboratory Analytical Reports

References

Arcadis, Inc. 2012. Corrective Measures Proposal, RACER Trust, Moraine, Ohio. December 31, 2012.

Arcadis, Inc. 2011. Draft Amended Quality Assurance Project Plan for RCRA Corrective Action, RACER Trust, Moraine, Ohio. November 28, 2011.

Arcadis Geraghty & Miller, Inc. 2002. Site-Wide Groundwater Monitoring Plan, General Motors Corporation, Moraine, Ohio. May 2002.

Geraghty & Miller, Inc. 1997. Supplemental RFI Work Plan, General Motors Powertrain Group Moraine Engine Plant and General Motors Truck Group Moraine Assembly Plant, Moraine, Ohio. July 1997.

Ohio EPA, 2020. Ohio EPA Report Review – 2019 Supplemental Annual Report Dated February 25, 2020. June 24, 2020.

U.S. EPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Unified Guidance.

ATTACHMENT E-1

Ohio EPA eBusiness Excel Worksheets



FACILITY	FCID	ADDR1	ADDR2	CITY	STATE	ZIP	PHONE	CONTACT	LATITUDE	LONGITUDE	GEOG_ METHOD	NUM_ WELLS	COUNTY
Former Delphi Harrison Thermal Systems	OHD000817577	3600 Dryden Road		MORAINE	OH	45439	313.486.2908	Pam Barnett	39.6923750	-84.2261690	A	8	Montgomery

FACILITY	FCID	WELL_ID	DATUM	DEPTH	TOP_CAS_ELV	TOP_SCR_ELV	BOT_SCR_ELV	GRADIENT	CAS_MATERL	PIPE_DIA	COMMENT	SURFACE	LATITUDE	LONGITUDE	X_VAR	Y_VAR	GEOG_METH	ELEV_METHO	WELL_USE	WELL_LOG_T	DATE_INSTL	DPTH_INSTL	DTW_INSTL	GWL_INSTL
Former Delph	OHD000817577	HR-04	MSL	66.80	742.60	685.61	675.61	U	PVC	2		740.61	39.7021650	-84.2220680			S	C	8A	M	07/15/83	66.80	41.00	699.61
Former Delph	OHD000817577	W-2-N	MSL	59.70	731.68	694.68	669.68	D	PVC	4		729.68	39.7001660	-84.2243360			S	C	8A	M	09/22/81	59.70	32.00	697.68
Former Delph	OHD000817577	W-3-N	MSL	57.60	733.66	699.98	674.98	D	PVC	4		731.98	39.6997120	-84.2234160			S	C	8A	M	09/09/81	57.60	25.50	706.48
Former Delph	OHD000817577	W-4-N	MSL	66.60	731.63	689.88	664.88	D	PVC	4		729.88	39.6996010	-84.2227460			S	C	8A	M	09/24/81	66.60	32.00	697.88
Former Delph	OHD000817577	HR-17	NAVD	59.55	725.42	697.70	677.70	U	PVC	4		724.70	39.6926330	-84.2262332			S	C	8A	M	11/13/89	59.55	20.87	704.53
Former Delph	OHD000817577	W-2-S	NAVD	67.00	725.67	694.38	659.38	D	PVC	4		724.38	39.6911509	-84.2288564			S	C	8A	M	09/21/81	67.00	35.50	689.51
Former Delph	OHD000817577	W-3-S	NAVD	76.40	728.16	690.20	650.20	D	PVC	4		726.20	39.6907577	-84.2283135			S	C	8A	M	09/23/81	76.40	41.00	686.54
Former Delph	OHD000817577	W-4-S	NAVD	72.50	726.76	695.51	655.61	D	PVC	4		725.61	39.6905106	-84.2269421			S	C	8A	M	09/28/81	72.50	37.50	689.16
Former Delph	OHD000817577	TB-02/072920/									Trip Blank dated 7/29/2020 submitted with samples 1.													
Former Delph	OHD000817577	DUP-02/072920/									Duplicate collected on 7/29/2020 with Parent HR-4.													
Former Delph	OHD000817577	EB-05/072920/									Equipment Blank collected 7/29/2020 from equipment set 1.													
Former Delph	OHD000817577	EB-06/072920/									Equipment Blank collected 7/29/2020 from equipment set 2.													

FACILITY	FCID	SAMP_DATE	SAMP_SCHEM	COMMENT
Former Delphi Harrison Thermal Systems	OHD000817577	07/29/20	A	Annual Sampling Event - 07/29/20

FACILITY	FCID	NAME	UNITS	DET_LMT	ACL	MCL	METH_CODE
Former Delphi Harrison Thermal Systems	OHD000817577	111Tri	ug/l	0.24			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	11-DCEE	ug/l	0.46			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	11DCA	ug/l	0.41			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	Benzene	ug/l	0.38			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	EthBenz	ug/l	0.39			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	TetCEthy	ug/l	0.33			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	Toluen	ug/l	0.35			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	TCE	ug/l	0.36			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	VC	ug/l	0.50			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	Xylene	ug/l	0.42			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	CisDCEE	ug/l	0.38			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	TranDCEE	ug/l	0.43			8260B
Former Delphi Harrison Thermal Systems	OHD000817577	pH F	SU	0.01			field
Former Delphi Harrison Thermal Systems	OHD000817577	GWL	feet	0.01			field
Former Delphi Harrison Thermal Systems	OHD000817577	Temp F	C	0.1			field
Former Delphi Harrison Thermal Systems	OHD000817577	Cond F	mS/cm	0.01			field
Former Delphi Harrison Thermal Systems	OHD000817577	Turb F	NTU	1			field
Former Delphi Harrison Thermal Systems	OHD000817577	Dis O2 F	mg/L	0.01			field
Former Delphi Harrison Thermal Systems	OHD000817577	ORP F	mV	1			field

FACILITY	FCID	WELL_ID	PARAMETER	SAMP_DATE	CHR_DATA	REAL_DATA	UNITS	DUP_CODE	REP_CODE	METH_CODE	DATA_QUAL
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	111Tri	7/29/2020	1.9	1.9	ug/L	DUP		SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	11DCA	7/29/2020	1.3	1.3	ug/L	DUP		SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	11-DCEE	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Benzene	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	CisDCEE	7/29/2020	0.52	0.52	ug/L	DUP		SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	EthBenz	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	TCE	7/29/2020	0.36	0.36	ug/L	DUP		SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	TetCEthy	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Toluen	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	TranDCEE	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	VC	7/29/2020	ND<1.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Xylene	7/29/2020	ND<2.0	ND	ug/L	DUP		SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	111Tri	7/29/2020	1.9	1.9	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	11DCA	7/29/2020	1.3	1.3	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	CisDCEE	7/29/2020	0.42	0.42	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	TCE	7/29/2020	0.36	0.36	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	TetCEthy	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	pH F	7/29/2020	7.06	7.06	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	GWL	7/29/2020	710.30	710.30	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Temp	7/29/2020	18.24	18.24	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Cond	7/29/2020	0.931	0.931	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Turb	7/29/2020	6.0	6.0	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	DO	7/29/2020	4.54	4.54	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-04	Redox	7/29/2020	202.9	202.9	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	111Tri	7/29/2020	3.6	3.6	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	11DCA	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	11-DCEE	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Benzene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	CisDCEE	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	EthBenz	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	TCE	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	TetCEthy	7/29/2020	160	160	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Toluen	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	TranDCEE	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	VC	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Xylene	7/29/2020	ND<4.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	pH F	7/29/2020	7.01	7.01	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	GWL	7/29/2020	707.74	707.74	feet			Field	

FACILITY	FCID	WELL_ID	PARAMETER	SAMP_DATE	CHR_DATA	REAL_DATA	UNITS	DUP_CODE	REP_CODE	METH_CODE	DATA_QUAL
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Temp	7/29/2020	17.54	17.54	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Cond	7/29/2020	1.092	1.092	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Turb	7/29/2020	1.08	1.08	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	DO	7/29/2020	0.92	0.92	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	HR-17	Redox	7/29/2020	174.3	174.3	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	111Tri	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	11DCA	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	CisDCEE	7/29/2020	1.8	1.8	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	TCE	7/29/2020	0.79	0.79	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	TetCEthy	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	pH F	7/29/2020	7.04	7.04	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	GWL	7/29/2020	709.80	709.80	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Temp	7/29/2020	18.75	18.75	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Cond	7/29/2020	1.013	1.013	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Turb	7/29/2020	39.5	39.5	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	DO	7/29/2020	4.49	4.49	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-N	Redox	7/29/2020	-33.3	-33.3	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	111Tri	7/29/2020	0.85	0.85	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	11DCA	7/29/2020	0.60	0.60	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	CisDCEE	7/29/2020	1.7	1.7	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	TCE	7/29/2020	3.6	3.6	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	TetCEthy	7/29/2020	6.3	6.3	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	pH F	7/29/2020	7.09	7.09	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	GWL	7/29/2020	706.96	706.96	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Temp	7/29/2020	16.97	16.97	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Cond	7/29/2020	1.040	1.040	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Turb	7/29/2020	5.45	5.45	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	DO	7/29/2020	0.54	0.54	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-2-S	Redox	7/29/2020	184.3	184.30	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	111Tri	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	11DCA	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U

FACILITY	FCID	WELL_ID	PARAMETER	SAMP_DATE	CHR_DATA	REAL_DATA	UNITS	DUP_CODE	REP_CODE	METH_CODE	DATA_QUAL
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	CisDCEE	7/29/2020	13	13	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	TCE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	TetCEthy	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	VC	7/29/2020	0.88	0.88	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	pH F	7/29/2020	7.03	7.03	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	GWL	7/29/2020	709.84	709.84	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Temp	7/29/2020	16.08	16.08	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Cond	7/29/2020	1.031	1.031	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Turb	7/29/2020	89.6	89.6	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	DO	7/29/2020	1.28	1.28	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-N	Redox	7/29/2020	-56.7	-56.7	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	111Tri	7/29/2020	1.6	1.6	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	11DCA	7/29/2020	0.48	0.48	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	CisDCEE	7/29/2020	1.9	1.9	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	TCE	7/29/2020	2	2	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	TetCEthy	7/29/2020	110	110	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	pH F	7/29/2020	7.03	7.03	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	GWL	7/29/2020	707.04	707.04	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Temp	7/29/2020	16.26	16.26	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Cond	7/29/2020	0.999	0.999	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Turb	7/29/2020	2.10	2.10	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	DO	7/29/2020	0.30	0.30	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-3-S	Redox	7/29/2020	175.6	175.6	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	111Tri	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	11DCA	7/29/2020	7.3	7.3	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	CisDCEE	7/29/2020	8.2	8.2	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	TCE	7/29/2020	6.9	6.9	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	TetCEthy	7/29/2020	0.81	0.81	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U

FACILITY	FCID	WELL_ID	PARAMETER	SAMP_DATE	CHR_DATA	REAL_DATA	UNITS	DUP_CODE	REP_CODE	METH_CODE	DATA_QUAL
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	TranDCEE	7/29/2020	0.55	0.55	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	pH F	7/29/2020	6.95	6.95	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	GWL	7/29/2020	709.95	709.95	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Temp	7/29/2020	16.06	16.06	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Cond	7/29/2020	1.079	1.079	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Turb	7/29/2020	166	166	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	DO	7/29/2020	4.02	4.02	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-N	Redox	7/29/2020	184.8	184.8	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	111Tri	7/29/2020	0.71	0.71	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	11DCA	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	11-DCEE	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Benzene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	CisDCEE	7/29/2020	1.0	1.0	ug/L			SW8260B	J
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	EthBenz	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	TCE	7/29/2020	9.1	9.1	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	TetCEthy	7/29/2020	37	37	ug/L			SW8260B	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Toluen	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	TranDCEE	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	VC	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Xylene	7/29/2020	ND<4.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	pH F	7/29/2020	6.99	6.99	SU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	GWL	7/29/2020	707.29	707.29	feet			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Temp	7/29/2020	17.14	17.14	C			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Cond	7/29/2020	1.029	1.029	ms/cm			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Turb	7/29/2020	18.9	18.9	NTU			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	DO	7/29/2020	1.56	1.56	mg/L			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	W-4-S	Redox	7/29/2020	180.1	180.1	mV			Field	
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	111Tri	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	11DCA	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	CisDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	TCE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	TetCEthy	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	TB-02	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	111Tri	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	11DCA	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U

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Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	CisDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	TCE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	TetCEthy	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-05	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	111Tri	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	11DCA	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	11-DCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	Benzene	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	CisDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	EthBenz	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	TCE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	TetCEthy	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	Toluen	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	TranDCEE	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	VC	7/29/2020	ND<1.0	ND	ug/L			SW8260B	U
Former Delphi Harrison Thermal Systems	OHD000817577	EB-06	Xylene	7/29/2020	ND<2.0	ND	ug/L			SW8260B	U

ATTACHMENT E-2

Groundwater Sampling Forms

ARCADIS Design & Consultancy for natural and built assets

Groundwater Sampling Form

Project Number	30042873	**Well ID**	HR-4			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	70s, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	55-65	**Casing Diameter (in.)**	2	**Well Material**	PVC
Static Water Level (ft-bmp)	32.30	**Total Depth (ft-bmp)**	67	**Water Column(ft)**	34.70	**Gallons in Well**	5.64
MP Elevation	742.6	**Pump Intake (ft-bmp)**	60	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	09:30	**Volumes Purged**	0.45	**Replicate/ Code No.**	DUP-02/072920/	**Sampled by**	Derreck Gossett
Purge Start:	09:05	**Gallons Purged**	2.51				
Purge End:	09:25						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:10	5	400	32.30	0.53	7.04	0.928	13.7	5.26	18.17	213.3	Clear	None
09:15	5	500	32.30	1.19	7.05	0.931	12.9	4.87	18.25	211.4	Clear	None
09:20	5	500	32.30	1.85	7.06	0.932	6.9	4.72	18.18	207.4	Clear	None
09:25	5	500	32.30	2.51	7.06	0.931	6.0	4.54	18.24	202.9	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	12	HCl

Comments: Wasps in well casing, also collected MS/MSD sample

Well Casing Volume Conversion

Well diameter (inches) = gallons
1 = 0.04 1.5 = 0.09 2.5 = 0.26 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 map
Condition of Well: Good
Well Completion:
Well Locked at Arrival: Yes
Well Locked at Departure: Yes
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

ARCADIS Design & Consultancy for natural and built assets

Groundwater Sampling Form

Project Number	30042873	**Well ID**	W-2-N			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	80s, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	35-60	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	21.88	**Total Depth (ft-bmp)**	60	**Water Column(ft)**	38.12	**Gallons in Well**	24.78
MP Elevation	731.68	**Pump Intake (ft-bmp)**	47.5	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	10:50	**Volumes Purged**	0.11	**Replicate/ Code No.**	NA	**Sampled by**	Derreck Gossett
Purge Start:	10:10	**Gallons Purged**	2.77				
Purge End:	10:45						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:15	5	300	21.88	0.40	7.01	0.986	46.0	6.94	17.44	19.0	Clear	None
10:20	5	300	21.88	0.79	7.02	0.986	44.0	4.95	17.47	4.0	Clear	None
10:25	5	300	21.88	1.19	7.02	0.989	41.8	4.84	17.69	-2.2	Clear	None
10:30	5	300	21.88	1.59	7.02	0.998	40.0	4.66	18.17	-9.8	Clear	None
10:35	5	300	21.88	1.98	7.03	1.019	38.9	4.56	19.07	-17.6	Clear	None
10:40	5	300	21.88	2.38	7.03	1.020	40.2	4.59	18.80	-26.7	Clear	None
10:45	5	300	21.88	2.77	7.04	1.013	39.5	4.49	18.75	-33.3	Clear	None

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

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons
1 = 0.04 1.5 = 0.09 2.5 = 0.26 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 map
Condition of Well: Good
Well Completion:
Well Locked at Arrival: Yes
Well Locked at Departure: Yes
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

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Groundwater Sampling Form

Project Number	30042873	**Well ID**	W-3-N			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	80s, sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	35-57	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	23.82	**Total Depth (ft-bmp)**	57	**Water Column(ft)**	33.18	**Gallons in Well**	21.57
MP Elevation	733.66	**Pump Intake (ft-bmp)**	44.5	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	12:20	**Volumes Purged**	0.18	**Replicate/ Code No.**	NA	**Sampled by**	Derreck Gossett
Purge Start:	11:40	**Gallons Purged**	3.96				
Purge End:	12:15						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:45	5	100	23.82	0.13	6.96	1.096	168	5.53	18.36	7.1	Clear	None
11:50	5	100	23.82	0.26	6.96	1.092	140	5.45	17.84	8.0	Clear	None
11:55	5	500	23.82	1.06	6.99	1.031	124	4.17	18.25	-10.8	Clear	None
12:00	5	500	23.82	1.72	7.00	1.056	110	3.53	17.30	-22.8	Clear	None
12:05	5	500	23.82	2.38	7.01	1.024	106	2.70	15.90	-34.3	Clear	None
12:10	5	500	23.82	3.17	7.02	1.030	99.6	1.77	16.10	-46.0	Clear	None
12:15	5	500	23.82	3.96	7.03	1.031	89.6	1.28	16.08	-56.7	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCl

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons
1 = 0.04 1.5 = 0.09 2.5 = 0.26 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 map
Condition of Well: Good
Well Completion:
Well Locked at Arrival: Yes
Well Locked at Departure: Yes
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

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Groundwater Sampling Form

Project Number	30042873	**Well ID**	W-4-N			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	80s,sunny
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	40-65	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	21.68	**Total Depth (ft-bmp)**	65	**Water Column(ft)**	43.32	**Gallons in Well**	28.16
MP Elevation	731.63	**Pump Intake (ft-bmp)**	52.5	**Purge Method:**	Low-Flow	**Sample Method**	Grab
Sample Time:	13:30	**Volumes Purged**	0.11	**Replicate/ Code No.**	NA	**Sampled by**	Derreck Gossett
Purge Start:	12:55	**Gallons Purged**	3.17				
Purge End:	13:25						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
13:00	5	400	21.68	0.53	6.91	1.097	157	5.42	15.91	179.2	Yellowish tan	None
13:05	5	400	21.68	1.06	6.94	1.092	200	4.65	15.90	180.6	Yellowish tan	None
13:10	5	400	21.68	1.59	6.94	1.089	234	4.45	16.04	182.6	Yellowish tan	None
13:15	5	400	21.68	2.11	6.95	1.085	212	4.28	15.96	184.1	Yellowish tan	None
13:20	5	400	21.68	2.64	6.95	1.079	180	4.11	15.92	185.6	Yellowish tan	None
13:25	5	400	21.68	3.17	6.95	1.079	166	4.02	16.06	184.8	Yellowish tan	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCl

Comments:

Well Casing Volume Conversion

Well diameter (inches) = gallons
1 = 0.04 1.5 = 0.09 2.5 = 0.26 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 map
Condition of Well: Good
Well Completion:
Well Locked at Arrival: Yes
Well Locked at Departure: Yes
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

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Groundwater Sampling Form

Project Number	30042873	**Well ID**	HR-17			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	Sunny, 80s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	27-47	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	17.68	**Total Depth (ft-bmp)**	56	**Water Column(ft)**	38.32	**Gallons in Well**	24.91
MP Elevation	725.42	**Pump Intake (ft-bmp)**	37	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	09:55	**Volumes Purged**	0.10	**Replicate/ Code No.**	NA	**Sampled by**	H.Smith
Purge Start:	09:20	**Gallons Purged**	2.55				
Purge End:	09:52						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:25	5	300	17.67	0.40	6.98	1.102	9.91	1.16	16.96	174.0	None	None
09:30	5	330	17.67	0.83	7.00	1.097	3.03	1.09	17.07	175.9	None	None
09:35	5	400	17.67	1.36	7.01	1.101	2.76	1.10	16.91	176.7	None	None
09:40	5	330	17.67	1.80	7.01	1.096	1.37	1.01	17.06	176.3	None	None
09:45	5	370	17.67	2.29	7.01	1.094	1.59	0.94	17.29	175.3	None	None
09:50	5	200	17.67	2.55	7.01	1.092	1.08	0.92	17.54	174.3	None	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	4	HCl

Comments: WL with transducer- 17.68
WL transducer removed-17.68
WL transducer reinstalled-17.68

Well Casing Volume Conversion

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

Well Information

Well Location: Good
Condition of Well: Good
Well Completion:
Well Locked at Arrival: Yes
Well Locked at Departure: Yes
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

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Groundwater Sampling Form

Project Number	30042873	**Well ID**	W-2-S			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	30-65	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	18.7	**Total Depth (ft-bmp)**	65	**Water Column(ft)**	46.3	**Gallons in Well**	30.09
MP Elevation	725.66	**Pump Intake (ft-bmp)**	47.5	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	11:15	**Volumes Purged**	0.08	**Replicate/ Code No.**	NA	**Sampled by**	H.Smith
Purge Start:	10:40	**Gallons Purged**	2.48				
Purge End:	11:11						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
10:45	5	400	18.72	0.53	7.08	1.028	5.75	0.70	16.29	180.8	None	None
10:50	5	400	18.72	1.06	7.08	1.029	5.75	0.61	16.77	181.9	None	None
10:55	5	280	18.72	1.43	7.09	1.036	4.45	0.61	16.99	183.0	None	None
11:00	5	200	18.72	1.69	7.09	1.041	5.83	0.56	16.94	184.1	None	None
11:05	5	300	18.72	2.09	7.09	1.039	5.25	0.55	16.69	184.4	None	None
11:10	5	300	18.72	2.48	7.09	1.040	5.45	0.54	16.97	184.3	None	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCl

Comments: WL with transducer- 18.70
WL transducer removed-18.70
WL transducer reinstalled-18.70

Well Casing Volume Conversion

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

Well Information

Well Location: Good
Condition of Well: Good
Well Completion:
Well Locked at Arrival: No
Well Locked at Departure: No
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

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Groundwater Sampling Form

Project Number	30042873	**Well ID**	W-3-S			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	36-76	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	21.12	**Total Depth (ft-bmp)**	76	**Water Column(ft)**	54.88	**Gallons in Well**	35.67
MP Elevation	728.16	**Pump Intake (ft-bmp)**	56	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	12:15	**Volumes Purged**	0.07	**Replicate/ Code No.**	NA	**Sampled by**	H.Smith
Purge Start:	11:50	**Gallons Purged**	2.46				
Purge End:	12:12						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:55	5	450	21.15	0.59	7.03	1.000	6.32	0.44	16.50	178.2	None	None
12:00	5	470	21.15	1.22	7.03	1.001	2.82	0.33	16.27	177.9	None	None
12:05	5	470	21.15	1.84	7.03	1.001	2.74	0.30	16.24	176.8	None	None
12:10	5	470	21.15	2.46	7.03	0.999	2.10	0.30	16.26	175.6	None	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	3	HCl

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Good
Condition of Well: Good
Well Completion:
Well Locked at Arrival: Yes
Well Locked at Departure: Yes
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

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Groundwater Sampling Form

Project Number	30042873	**Well ID**	W-4-S			**Date**	7/29/2020
Project Name/Location	RACER Trust Moraine Facilities, Dryden Road, Moraine, Ohio					**Weather(°F)**	Sunny, 90s
Measuring Pt. Description	Top of Casing	**Screen Setting (ft-bmp)**	30-70	**Casing Diameter (in.)**	4	**Well Material**	PVC
Static Water Level (ft-bmp)	19.47	**Total Depth (ft-bmp)**	70	**Water Column(ft)**	50.53	**Gallons in Well**	32.84
MP Elevation	726.76	**Pump Intake (ft-bmp)**	50	**Purge Method:**	Low-Flow	**Sample Method**	Low-Flow
Sample Time:	13:25	**Volumes Purged**	0.08	**Replicate/ Code No.**	NA	**Sampled by**	H.Smith
Purge Start:	12:53	**Gallons Purged**	2.60				
Purge End:	13:21						

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Gallons Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:58	5	400	19.48	0.53	6.99	1.031	23.6	1.63	17.19	175.9	None	None
13:03	5	370	19.48	1.02	7.00	1.030	17.9	1.52	17.22	177.6	None	None
13:08	5	400	19.48	1.55	7.00	1.030	19.5	1.50	17.16	179.1	None	None
13:13	5	400	19.48	2.07	7.00	1.029	19.5	1.51	17.23	179.7	None	None
13:18	5	400	19.48	2.60	6.99	1.029	18.9	1.56	17.14	180.1	None	None

Constituent Sampled	Container	Number	Preservative
VOCs	40 mL Glass	4	HCl

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Good
Condition of Well: Good
Well Completion:
Well Locked at Arrival: No
Well Locked at Departure: No
Key Number To Well:

ft-bmp = feet below measuring point
in. = inches
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU =
PVC = polyvinyl chloride
mV = millivolts
mL/min = milliliters per minute

ATTACHMENT E-3

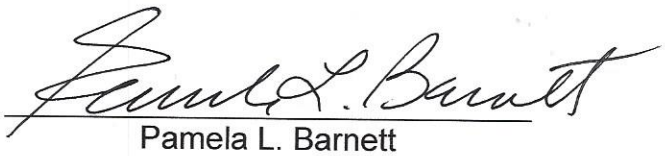
Laboratory Data Review Report

OHIO EPA
SUPPLEMENTARY ANNUAL REPORT
FOR 2020 GROUNDWATER
MONITORING DATA

February 25, 2021

Prepared by Arcadis

I certify under penalty of law that the groundwater sample data provided in this report, to the best of my knowledge and belief, is representative, valid, and usable for its intended purpose. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Pamela L. Barnett
Cleanup Manager
RACER Trust

ARCADIS Design & Consultancy for natural and built assets

RACER TRUST

DATA REVIEW

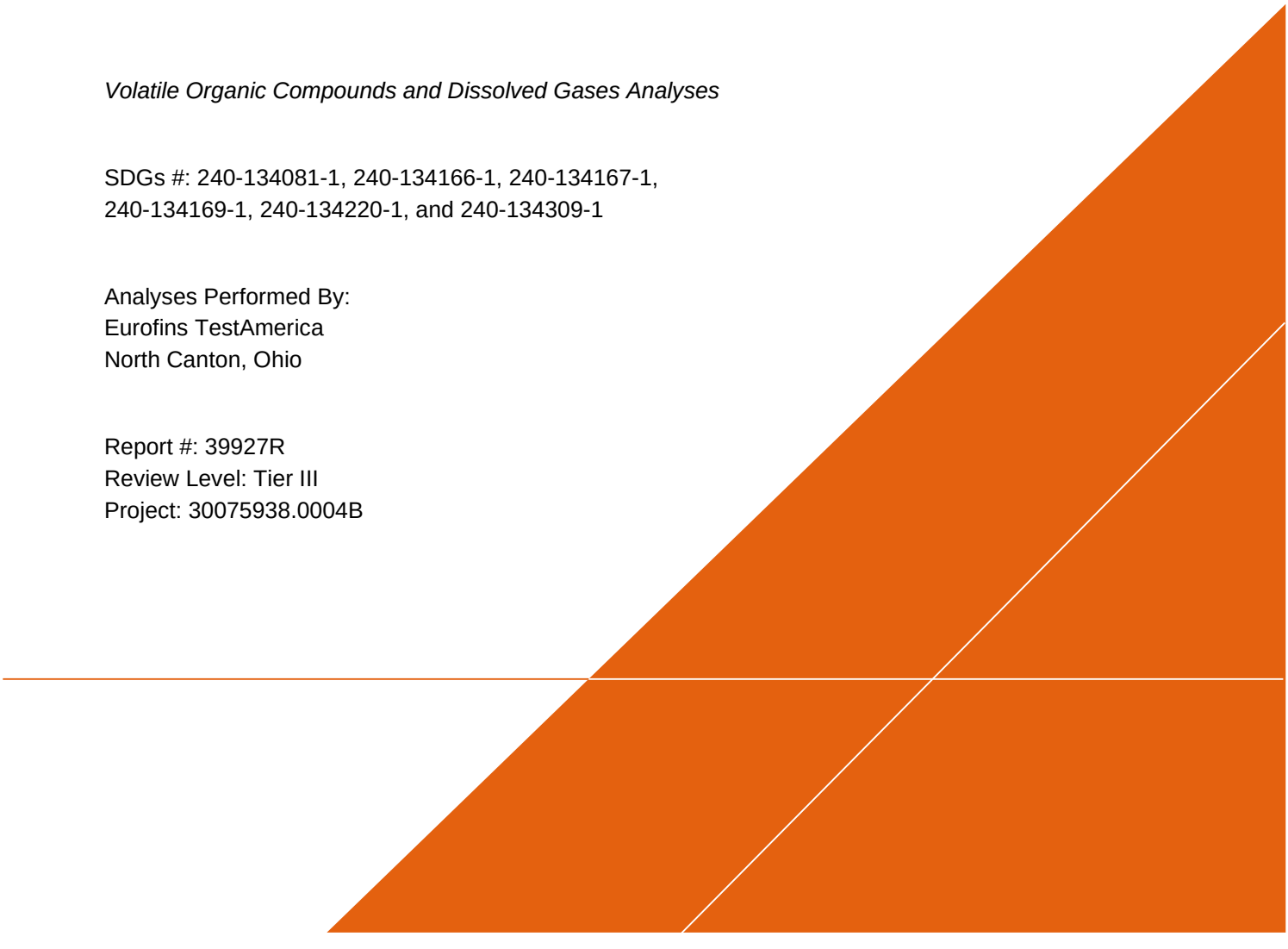
Moraine, Ohio

Volatile Organic Compounds and Dissolved Gases Analyses

SDGs #: 240-134081-1, 240-134166-1, 240-134167-1,
240-134169-1, 240-134220-1, and 240-134309-1

Analyses Performed By:
Eurofins TestAmerica
North Canton, Ohio

Report #: 39927R
Review Level: Tier III
Project: 30075938.0004B



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) 240-134081-1, 240-134166-1, 240-134167-1, 240-134169-1, 240-134220-1, and 240-134309-1 for samples collected in association with the RACER Trust site in Moraine, Ohio. The review was conducted as a Tier III evaluation and included review of data package completeness as required under USEPA Region III M3 validation. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain-of-custody records (COCs). Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	MET	Diss. Gas	MISC
240-134081-1	RMW-100 /072720/	240-134081-1	Water	7/27/2020		X				
	RMW-101 /072720/	240-134081-2	Water	7/27/2020		X				
	GM-47 /072720/	240-134081-3	Water	7/27/2020		X				
	GM-50 /072720/	240-134081-4	Water	7/27/2020		X				
	EB-2 /072720/	240-134081-5	Water	7/27/2020		X				
	GM-16 /072820/	240-134081-6	Water	7/28/2020		X				
	RMW-102 /072820/	240-134081-7	Water	7/28/2020		X				
	GM-64 /072820/	240-134081-8	Water	7/28/2020		X				
	GM-63 /072820/	240-134081-9	Water	7/28/2020		X				
	GM-51 /072720/	240-134081-10	Water	7/27/2020		X				
	GM-48 /072720/	240-134081-11	Water	7/27/2020		X				
	GM-49 /072720/	240-134081-12	Water	7/27/2020		X				
	GM-52 /072720/	240-134081-13	Water	7/27/2020		X				
	RMW-91 /072820/	240-134081-14	Water	7/28/2020		X				
	RMW-92 /072820/	240-134081-15	Water	7/28/2020		X				
	RMW-94 /072820/	240-134081-16	Water	7/28/2020		X				
	RMW-93 /072820/	240-134081-17	Water	7/28/2020		X				
	WSU-23 /272820/	240-134081-18	Water	7/28/2020		X				
	DN-13 /072820/	240-134081-19	Water	7/28/2020		X				
	RMW-99 /072820/	240-134081-20	Water	7/28/2020		X				
	EB-01 /072720/	240-134081-21	Water	7/27/2020		X				
	DUP-01 /072820/	240-134081-22	Water	7/28/2020	RMW-91 /072820/	X				
	TB-01 /072820/	240-134081-23	Water	7/28/2020		X				
240-134166-1	RMW-98/072820/	240-134166-1	Water	7/28/2020		X				
	EB-04/072820/	240-134166-2	Water	7/28/2020		X				
	GM-20D/072920/	240-134166-3	Water	7/29/2020		X				
	GM-15/072920/	240-134166-4	Water	7/29/2020		X				

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	MET	Diss. Gas	MISC
	EB-03/072820/	240-134166-5	Water	7/28/2020		X				
	TB-02/072920/	240-134166-6	Water	7/29/2020		X				
240-134167-1	HR-4/072920/	240-134167-1	Water	7/29/2020		X				
	W-2-N/072920/	240-134167-2	Water	7/29/2020		X				
	W-3-N/072920/	240-134167-3	Water	7/29/2020		X				
	W-4-N/072920/	240-134167-4	Water	7/29/2020		X				
	DUP-02/072920/	240-134167-5	Water	7/29/2020	HR-4 /072920/	X				
240-134169-1	HR-17/072920/	240-134169-1	Water	7/29/2020		X				
	W-2-S//072920/	240-134169-2	Water	7/29/2020		X				
	W-3-S/072920/	240-134169-3	Water	7/29/2020		X				
	W-4-S/072920/	240-134169-4	Water	7/29/2020		X				
	HR-1/072920/	240-134169-5	Water	7/29/2020		X				
240-134220-1	HR-16 /072920/	240-134220-1	Water	7/29/2020		X				
	EB-06 /072920/	240-134220-2	Water	7/29/2020		X				
	RMW-95 /073020/	240-134220-3	Water	7/30/2020		X				
	RMW-96 /073020/	240-134220-4	Water	7/30/2020		X				
	RMW-97 /073020/	240-134220-5	Water	7/30/2020		X				
	GM-38 /073020/	240-134220-6	Water	7/30/2020		X				
	GM-9 /073020/	240-134220-7	Water	7/30/2020		X				
	GM-80 /073020/	240-134220-8	Water	7/30/2020		X				
	EAST /073020/	240-134220-9	Water	7/30/2020		X				
	WEST /073020/	240-134220-10	Water	7/30/2020		X				
	GM-36 /073020/	240-134220-11	Water	7/30/2020		X				
	GM-35 /073020/	240-134220-12	Water	7/30/2020		X				
	GM-37 /073020/	240-134220-13	Water	7/30/2020		X				
	EB-05 /072920/	240-134220-14	Water	7/29/2020		X				
	EB-07 /073020/	240-134220-15	Water	7/30/2020		X				
	EB-08 /073020/	240-134220-16	Water	7/30/2020		X				
	TB-03 /073020/	240-134220-17	Water	7/30/2020		X				
240-134309-1	GM - 8 /073120/	240-134309-1	Water	7/31/2020		X			X	X
	GM - 6 /073120/	240-134309-2	Water	7/31/2020		X			X	X
	GM - 2 /073120/	240-134309-3	Water	7/31/2020		X			X	X
	GM - 32 /073120/	240-134309-4	Water	7/31/2020		X			X	X
	GM - 19S /073120/	240-134309-5	Water	7/31/2020		X			X	X
	GM - 21 /073120/	240-134309-6	Water	7/31/2020		X			X	X
	GM - 28R /073120/	240-134309-7	Water	7/31/2020		X			X	X
									X	X

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	MET	Diss. Gas	MISC
240-134309-1	GM - 29 /073120/	240-134309-8	Water	7/31/2020		X			X	X
	GM - 27 /073120/	240-134309-9	Water	7/31/2020		X			X	X
	GM - 23 /073120/	240-134309-10	Water	7/31/2020		X			X	X
	DUP - 03 /073120/	240-134309-11	Water	7/31/2020	GM - 28R /073120/	X				
	EB - 09 /073120/	240-134309-12	Water	7/31/2020		X				
	EB - 10 /073120/	240-134309-13	Water	7/31/2020		X				
	TB - 04 /073120/	240-134309-14	Water	7/31/2020		X				

Notes: 1. As specified on the COCs, samples RMW-91 /072820/, HR-4/072920/, and GM - 28R /073120/ were used in the MS/MSD analyses.

2. Dissolved gases analysis was performed by Pace Analytical in Pittsburgh, Pennsylvania and was reported as SDG 220080513.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X	X		
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data package completeness and compliance		X		X	

1. The samples for dissolved gases analysis were received at the laboratory at 14.2 degrees Celsius, five days after sampling. This is in exceedance of the EPA-recommended maximum of 6 degrees. The dissolved gases results were therefore qualified as estimated for all samples.

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B and Pace Analytical method AM20GAX (modified USEPA Method RSK175). Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Data Review (October 1999) and Quality Assurance Project Plan (QAPP) for Motors Liquidation Company (MLC) Moraine Facilities (November 19, 2010).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260B	Water	14 days from collection to analysis (preserved)	Cool to < 6 °C; pH < 2 with HCl
		7 days from collection to analysis (unpreserved)	Cool to < 6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and field blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field blanks also measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

The trip blanks and laboratory method blanks showed no detections. Benzene was detected in two of the equipment blanks, and one of the associated samples. Sample results less than the BAL were qualified as documented in the following table.

SDG	Sample	Analyte	Sample Result	Qualification
240-134309-1	GM - 8 /073120/	Benzene	Detected sample results > reporting limit (RL) and < BAL	"UB" at detected sample concentration

3. Mass Spectrometer Tuning

GC/MS tuning is performed to ensure mass resolution, identification, and to some degree, sensitivity. The tuning compound (4-bromofluorobenzene) analysis must be performed at the beginning of each 12-hour period during which calibration standards and samples are analyzed and must meet the ion-abundance criteria specified in the analytical method.

GC/MS performance was acceptable, and all analyses were initiated within 12 hours of each instrument tune check.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable (linear or quadratic) performance at the beginning of the analytical sequence. The continuing calibration verifies that the day-to-day instrument performance is satisfactory.

4.1 Initial Calibration (ICV)

Each target compound in the initial calibration must exhibit a relative response factor (RRF) greater than the control limit of 0.05 and either a percent relative standard deviation (%RSD) within the control limit of 20% or a correlation coefficient greater than 0.99.

All compounds associated with the initial calibration were within the specified control limits.

4.2 Continuing Calibration (CCV)

Each target compound associated with the continuing calibration standard must exhibit a percent difference (%D) within the control limit of 20%, and a RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, except for the compounds presented in the following table.

SDG	Sample	Initial / Continuing	Compound	Criteria
240-134081-1	GM-64 /072820/ TB-01 /072820/	CCV %D	1,1,1-Trichloroethane	-21.1 %
240-134220-1	HR-16 /072920/ EB-06 /072920/ RMW-95 /073020/ RMW-96 /073020/ GM-38 /073020/ GM-9 /073020/ GM-80 /073020/ EAST /073020/ WEST /073020/ GM-36 /073020/ GM-35 /073020/ GM-37 /073020/ EB-05 /072920/	CCV %D	1,1-Dichloroethane	+21.0 %
			1,1-Dichloroethene	+28.2 %
			cis-1,2-Dichloroethene	+22.2 %
			trans-1,2-Dichloroethene	+28.0 %
240-134309-1	GM - 8 /073120/ GM - 6 /073120/ GM - 2 /073120/ GM - 32 /073120/ GM - 27 /073120/	CCV %D	Vinyl chloride	+29.1 %
	GM - 8 /073120/ GM - 6 /073120/ GM - 32 /073120/ GM - 21 /073120/ GM - 27 /073120/	CCV %D	Tetrachloroethene	+22.1 %

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF < 0.05	Non-detect	R
		Detect	J
	RRF > 0.05	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 20% or a correlation coefficient < 0.99	Non-detect	UJ
		Detect	J

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D > 20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D < 20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with surrogates exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Surrogate	Recovery
240-134309-1	GM - 6 /073120/	Dibromofluoromethane	> UL
		1,2-Dichloroethane-d_4 Toluene-d_8 4-Bromofluorobenzene	Acceptable

The sample results associated with surrogate deviations are qualified according to the criteria presented in the following table. Because no target compounds were detected in GM - 6 /073120/, no data require qualification.

Control Limit	Sample Result	Qualification
> UL (Upper Control Limit)	Non-detect	No Action
	Detect	J
< LL (Lower Control Limit) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
D - Surrogates diluted below the calibration curve	Non-detect	UJ[1]
	Detect	J[1]

[1] A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC analysis exhibit area counts that are within a factor of two (i.e. 50% - 200%) of the area counts of the associated continuing calibration standard.

All internal standard area counts were within the control limits.

7. Matrix Spike / Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Samples RMW-91 /072820/, HR-4/072920/, HR-1/072920/, GM-35 /073020/, and GM - 28R /073120/ were used in the MS/MSD analyses. Samples associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Sample	Compound	MS Recovery	MSD Recovery
240-134220-1	GM-35 /073020/	cis-1,2-Dichloroethene	Acceptable	> UL

The criteria used to evaluate the MS/MSD recoveries are presented in the following table; in the case of MS/MSD deviations, the sample results are qualified as documented. The cis-1,2-dichloroethene result for GM-35 /073020/ was qualified as estimated ("J").

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

Samples associated with LCS analyses exhibiting recoveries outside of the control limits are presented in the following table.

SDG	Samples	Compounds	LCS Recovery
240-134309-1	GM - 8 /073120/ GM - 6 /073120/ GM - 32 /073120/ GM - 21 /073120/ GM - 27 /073120/	Tetrachloroethene	> UL

SDG	Samples	Compounds	LCS Recovery
240-134309-1	GM - 8 /073120/ GM - 6 /073120/ GM - 2 /073120/ GM - 32 /073120/ GM - 27 /073120/	Vinyl chloride	> UL

The criteria used to evaluate the LCS recoveries are presented in the following table; in the case of any LCS deviations, the sample results are qualified as documented.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

9. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL is applied to the difference between the results for water matrices.

Detected results for the field duplicate sample results are summarized in the following table.

SDG	Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
240-134081-1	RMW-91 /072820/ / DUP-01 /072820/	1,1,1-Trichloroethane	1.8 J	1.9 J	Acceptable
		1,1-Dichloroethane	5.0 U	1.5 J	Acceptable
		cis-1,2-Dichloroethene	8.9	9.5	6.5 %
		Tetrachloroethene	83	91	9.2 %
		Trichloroethene	53	55	3.7 %
240-134167-1	HR-4/072920/ / DUP-02/072920/	1,1,1-Trichloroethane	1.9	1.9	0.0 %
		1,1-Dichloroethane	1.3	1.3	0.0 %
		cis-1,2-Dichloroethene	0.42 J	0.52 J	Acceptable
		Trichloroethene	0.36 J	0.36 J	Acceptable
240-134309-1	GM - 28R /073120/ / DUP - 03 /073120/	cis-1,2-Dichloroethene	0.91 J	0.99 J	Acceptable
		Tetrachloroethene	0.92 J	0.85 J	Acceptable
		Vinyl chloride	1.0 U	0.50 J	Acceptable

Notes: N/A = Not applicable
U = Not detected
J = Estimated (result is < RL)

The field duplicate samples exhibited acceptable results.

10. System Performance and Overall Assessment

6*Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCS

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Gas Chromatography/Mass Spectrometry (GC/MS)					
Tier II Validation					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks		X	X		
C. Trip Blanks		X		X	
Surrogates Accuracy (%R)		X	X		
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	
Tier III Validation					
System Performance and Column Resolution		X		X	
Initial Calibration %RSD		X		X	
Continuing Calibration RRF		X		X	
Continuing Calibration %D		X	X		
Instrument Tune and Performance Check		X		X	
Ion Abundance Criteria for Each Instrument Used		X		X	
Internal Standard		X		X	
Compound Identification and Quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Quantitation transcriptions/calculations		X		X	
E. Reporting limits adjusted for sample dilutions		X		X	

%R - Percent recovery
RPD - Relative percent difference
%RSD - Relative standard deviation
%D - Percent difference

DISSOLVED GASES ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Dissolved Gases by AM20GAX	Water	14 days from collection to analysis	Cool to < 6 °C; pH < 2 with HCl

All samples were analyzed within the specified holding time criteria. However, they were received at the laboratory at 14.2 degrees Celsius, five days after sampling. The dissolved gases results were therefore qualified as estimated for all samples.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Target analytes were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable (linear or quadratic) performance at the beginning of the analytical sequence. The continuing calibration verifies that the day-to-day instrument performance is satisfactory.

3.1 Initial Calibration (ICV)

Each target compound in the initial calibration must exhibit a percent relative standard deviation (%RSD) within the control limit of 20% or a correlation coefficient greater than 0.99.

All compounds associated with the initial calibration were within the specified control limits.

3.2 Continuing Calibration (CCV)

Each target compound associated with the continuing calibration standard must exhibit a percent difference (%D) within the control limit of 20%.

All compounds associated with the continuing calibrations were within the specified control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit recoveries within the laboratory-established

acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis was not performed on a sample from within these SDGs.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analyses exhibited recoveries and RPDs within the control limits.

6. Field Duplicate Sample Analysis

The field duplicate analysis is used to assess the precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL is applied to the difference between the results for water matrices.

Results for the field duplicate sample results are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
GM - 28R /073120/ / DUP - 03 /073120/	Ethane	0.23 J	0.39 J	Acceptable
	Ethene	1.0 U	5.2	Exceedance
	Methane	110	110	0.0 %

Notes: U = Not detected
J = Estimated (result is < RL)

The ethene results for the field duplicate samples exhibited a difference greater than the control limit. The ethene results for GM - 28R /073120/ and DUP - 03 /073120/ were qualified as estimated.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR DISSOLVED GASES

Dissolved Gases: AM20GAX	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Gas Chromatography/Thermal Conductivity Detector (GC/TCD)					
Tier II Validation					
Holding Times/Temperature/Preservation		X	X		
Reporting Limits (units)		X		X	
Blanks					
A. Method/Calibration Blanks		X		X	
B. Equipment and/or Field Blanks		X		X	
C. Trip Blanks	X				X
Matrix Spike Sample (MS) Accuracy (%R)		X		X	
Matrix Spike Duplicate Sample (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD RPD		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	
Tier III Validation					
Initial Calibration %RSDs		X		X	
Continuing Calibration %Ds		X		X	
System Performance and Column Resolution		X		X	
Compound Identification and Quantitation					
A. Quantitation Reports		X		X	
B. RT of Sample Compounds Within Established RT Windows		X		X	
C. Transcription/Calculation Errors Present		X		X	
D. Reporting Limits adjusted for Sample Dilutions		X		X	

%R - Percent recovery
RPD - Relative percent difference
%RSD - Relative standard deviation
%D - Percent difference

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 9060. Data were reviewed in accordance with USEPA National Functional Guidelines for Inorganic Data Review (October 2004) and Quality Assurance Project Plan (QAPP) for Motors Liquidation Company (MLC) Moraine Facilities (November 19, 2010).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within the control limits.

  * Duplicate analysis is not within the control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  UB Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data, but any value potentially contains error.

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Organic Carbon (TOC) by SW-846 9060	Water	28 days from collection to analysis	Cool to < 6 °C; pH < 2

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

TOC was not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument can produce acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) and Laboratory Duplicate Sample Analysis

MS/MSD and laboratory duplicate sample data are used to assess the precision and accuracy of the analytical method.

4.1 MS/MSD Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. All metal analytes must exhibit recoveries within the established acceptance limits of 75% to 125%. The relative percent difference (RPD) between the MS and MSD results must be no greater than the established acceptance limit of 20%. The MS/MSD control limits do not apply for MS/MSDs performed on samples where the analyte's concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. In instance where this is true, the data will not be qualified, and any laboratory qualifiers will be removed. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Samples GM - 6 /073120/, GM - 28R /073120/, and GM - 29 /073120/ were used in the MS/MSD analyses. All analytes associated with the MS/MSD analyses exhibited acceptable recoveries and RPDs.

4.2 Laboratory Duplicate Sample Analysis

The laboratory duplicate sample RPD criterion is applied when parent and duplicate sample concentrations are at least five times the reporting limit (RL). A control limit of 20% for water matrices and 35% for soil and sediment matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of one times the RL for water matrices and two times the RL for soil and sediment matrices is applied to the difference between the results.

MS/MSD analysis was performed instead of the laboratory duplicate sample analysis. The MS/MSD analyses exhibited acceptable RPDs.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit recoveries between the control limits of 80% and 120%.

All analytes associated with the LCS analyses exhibited recoveries within the control limits.

6. Field Duplicate Sample Analysis

The field duplicate sample analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 35% for water matrices is applied to the RPDs between the parent sample and the field duplicate sample results. In the instance when the parent and/or duplicate sample concentrations are less than or equal to five times the RL, a control limit of two times the RL for water matrices is applied to the difference between the results.

Results for the field duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
GM - 28R /073120/ / DUP - 03 /073120/	Total organic carbon (TOC)	1.5	3.0	Acceptable

The field duplicate samples exhibited acceptable results.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: SW-846 9060	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding Times		X		X	
Reporting Limits (Units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment and/or Field Blanks	X				X
Matrix Spike (MS) Accuracy (%R)		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD RPD	X				X
Laboratory Duplicate Sample RPD		X		X	
Field Duplicate Sample RPD		X		X	
Dilution Factor		X		X	
Tier III Validation					
Initial calibration %RSD or correlation coefficient		X		X	
Continuing calibration %D		X		X	
Raw Data		X		X	
Transcription/calculation errors present		X		X	
Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:
%RSD – relative standard deviation
%R - percent recovery
RPD - relative percent difference
%D – difference

Validation Performed By:	Dennis Dyke
Signature:	
Date:	February 9, 2021
Peer Review:	Dennis Capria
Date:	February 10, 2021

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

2-8/3-7

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.9
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: ~~Page 2 of 2~~ 1 of 3
Company: ARCADIS U.S., Inc.				Page ~~9 of 9~~
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			Job #:
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	8260B - VOC's with 10x dilution	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S	A		
RMW-100/072720/	7/27/20	1215	G	Water	N	N	X			3	
RMW-101/072720/	7/27/20	1320	G	Water	N	N	X		X	4	10X dilution
GM-47/072720/	7/27/20	1530	G	Water	N	N	X			3	
GM-50/072720/	7/27/20	1635	G	Water	N	N	X			3	
EB-2/072720/	7/27/20	1650	G	Water	N	N	X			3	
GM-16/072820/	7/28/20	940	G	Water	N	N	X			3	
RMW-107/072820/	7/28/20	1050	G	Water	N	N				3	
GM-64/072820/	7/28/20	1215	G	Water	N	N				3	
GM-63/072820/	7/28/20	1330	G	Water	N	N				3	
GM-51/072720/	7/27/20	1220	G	Water	N	N				3	
GM-48/072720/	7/27/20	1330	G	Water	N	N	X			3	

210 Dayton

240-134081 Chain of Custody

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/23/20 1605	Arcadis		7-28-2020 1605	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	7-28-2020 1630	ETA		7-29-20 800	ETA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

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8/12/2020

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

2-8/3-7

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.1
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 2 of 3 ~~Page 1 of 3~~
Company: ARCADIS U.S., Inc.				Job #:

Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:
City: Columbus	TAT Requested (days): Standard
State, Zip: OH, 43235	
Phone:	PO #: 30042873.0004B
Email: carolyn.grogan@arcadis.com	WO #:
Project Name: Racer Moraine Annual	Project #: 24006917
Site: RACER Moraine	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
GM-49/072720/	7/27/20	1445	G	Water	N	N	X		3	
GM-52/072720/	7/27/20	1540	G	Water	N	N	X		3	
RMW-91/072820/	7/28/20	0920	G	Water	N	Y	X		9	MS/MSD
RMW-92/072820/	7/28/20	1035	G	Water	N	N	X		3	
RMW-94/072820/	7/28/20	1130	G	Water	N	N	X		3	
RMW-93/072820/	7/28/20	1220	G	Water	N	N	X		3	
WSU-23/072820/	7/28/20	1430	G	Water	N	N	X		3	
DN-13/072820/	7/28/20	1505	G	Water	N	N	X		3	
RMW-99/072820/	7/28/20	1515	G	Water	N	N	X		3	
EB-01/072720/	7/27/20	1645	G	Water	N	N	X		3	
DUP-01/072820/	7/28/20	—	G	Water	N	N	X		3	

210 Dayton

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☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 7/28/20 1605	Company: Arcadis	Received by:	Date/Time: 7-28-2020 1605	Company: ETA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time: 7-28-2020 1630	Company: ETA	Received by:	Date/Time: 7-29-20 800	Company: ETAC

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

2.8137

eurofins Environment Testing America

Client Information	Sampler: D. Gossett	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.2
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 3 of 3 (Page ~~2 of 9~~)
Company: ARCADIS U.S., Inc.				Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
TB-01/072820/	7/28/20	–	G	Water	N	N	X		2	Trip Blank
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						
				Water						

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	7/28/20 1605	Arcadis	[signature]	7-28-2020 1605	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by: [signature]	Date/Time: 7-28-2020 1630	Company ETA	Received by: [signature]	Date/Time: 7-29-20 800	Company ETA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-100 /072720/
Date Collected: 07/27/20 12:15
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 06:09	1
1,1-Dichloroethane	**0.42**	**J**	1.0	0.41	ug/L			08/07/20 06:09	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 06:09	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 06:09	1
cis-1,2-Dichloroethene	**0.67**	**J**	1.0	0.38	ug/L			08/07/20 06:09	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 06:09	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/07/20 06:09	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 06:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 06:09	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/07/20 06:09	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 06:09	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 06:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 06:09*	*1*
4-Bromofluorobenzene (Surr)	*81*		*47 - 134*		*08/07/20 06:09*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*08/07/20 06:09*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/07/20 06:09*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-101 /072720/
Date Collected: 07/27/20 13:20
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 06:31	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/07/20 06:31	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 06:31	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 06:31	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/07/20 06:31	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 06:31	1
Tetrachloroethene	**0.36**	**J**	1.0	0.33	ug/L			08/07/20 06:31	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 06:31	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 06:31	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/07/20 06:31	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 06:31	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 06:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/07/20 06:31*	*1*
4-Bromofluorobenzene (Surr)	*82*		*47 - 134*		*08/07/20 06:31*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/07/20 06:31*	*1*
Toluene-d8 (Surr)	*100*		*69 - 122*		*08/07/20 06:31*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-47 /072720/
Date Collected: 07/27/20 15:30
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	2.0	U	2.0	0.48	ug/L			08/07/20 12:32	2
1,1-Dichloroethane	**2.7**		2.0	0.81	ug/L			08/07/20 12:32	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/07/20 12:32	2
Benzene	2.0	U	2.0	0.77	ug/L			08/07/20 12:32	2
cis-1,2-Dichloroethene	**38**		2.0	0.76	ug/L			08/07/20 12:32	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/07/20 12:32	2
Tetrachloroethene	**33**		2.0	0.65	ug/L			08/07/20 12:32	2
Toluene	2.0	U	2.0	0.69	ug/L			08/07/20 12:32	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/07/20 12:32	2
Trichloroethene	**10**		2.0	0.72	ug/L			08/07/20 12:32	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/07/20 12:32	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/07/20 12:32	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*		*08/07/20 12:32*	*2*
4-Bromofluorobenzene (Surr)	*82*		*47 - 134*		*08/07/20 12:32*	*2*
Dibromofluoromethane (Surr)	*88*		*78 - 129*		*08/07/20 12:32*	*2*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/07/20 12:32*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-50 /072720/
Date Collected: 07/27/20 16:35
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 07:14	1
1,1-Dichloroethane	**2.2**		1.0	0.41	ug/L			08/07/20 07:14	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 07:14	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 07:14	1
cis-1,2-Dichloroethene	**7.0**		1.0	0.38	ug/L			08/07/20 07:14	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 07:14	1
Tetrachloroethene	**1.9**		1.0	0.33	ug/L			08/07/20 07:14	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 07:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 07:14	1
Trichloroethene	**0.75**	**J**	1.0	0.36	ug/L			08/07/20 07:14	1
Vinyl chloride	**1.4**		1.0	0.50	ug/L			08/07/20 07:14	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 07:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 07:14*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/07/20 07:14*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/07/20 07:14*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/07/20 07:14*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: EB-2 /072720/
Date Collected: 07/27/20 16:50
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 07:36	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/07/20 07:36	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 07:36	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 07:36	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/07/20 07:36	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 07:36	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/07/20 07:36	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 07:36	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 07:36	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/07/20 07:36	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 07:36	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 07:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*		*08/07/20 07:36*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/07/20 07:36*	*1*
Dibromofluoromethane (Surr)	*88*		*78 - 129*		*08/07/20 07:36*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/07/20 07:36*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-16 /072820/
Date Collected: 07/28/20 09:40
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 19:48	1
1,1-Dichloroethane	**0.45**	**J**	1.0	0.41	ug/L			08/07/20 19:48	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 19:48	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 19:48	1
cis-1,2-Dichloroethene	**1.7**		1.0	0.38	ug/L			08/07/20 19:48	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 19:48	1
Tetrachloroethene	**12**		1.0	0.33	ug/L			08/07/20 19:48	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 19:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 19:48	1
Trichloroethene	**3.0**		1.0	0.36	ug/L			08/07/20 19:48	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 19:48	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 19:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 19:48*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/07/20 19:48*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 19:48*	*1*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/07/20 19:48*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-102 /072820/
Date Collected: 07/28/20 10:50
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 20:10	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/07/20 20:10	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 20:10	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 20:10	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/07/20 20:10	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 20:10	1
Tetrachloroethene	**12**		1.0	0.33	ug/L			08/07/20 20:10	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 20:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 20:10	1
Trichloroethene	**0.37**	**J**	1.0	0.36	ug/L			08/07/20 20:10	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 20:10	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*		*08/07/20 20:10*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/07/20 20:10*	*1*
Dibromofluoromethane (Surr)	*96*		*78 - 129*		*08/07/20 20:10*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/07/20 20:10*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-64 /072820/
Date Collected: 07/28/20 12:15
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	~~U~~ UJ	1.0	0.24	ug/L			08/07/20 23:47	1
1,1-Dichloroethane	**0.58**	**J**	1.0	0.41	ug/L			08/07/20 23:47	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 23:47	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 23:47	1
cis-1,2-Dichloroethene	**29**		1.0	0.38	ug/L			08/07/20 23:47	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 23:47	1
Tetrachloroethene	**14**		1.0	0.33	ug/L			08/07/20 23:47	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 23:47	1
trans-1,2-Dichloroethene	**0.46**	**J**	1.0	0.43	ug/L			08/07/20 23:47	1
Trichloroethene	**4.3**		1.0	0.36	ug/L			08/07/20 23:47	1
Vinyl chloride	**1.5**		1.0	0.50	ug/L			08/07/20 23:47	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 23:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 23:47*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/07/20 23:47*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 23:47*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/07/20 23:47*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-63 /072820/
Date Collected: 07/28/20 13:30
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/03/20 17:23	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/03/20 17:23	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/03/20 17:23	1
Benzene	1.0	U	1.0	0.38	ug/L			08/03/20 17:23	1
cis-1,2-Dichloroethene	**2.0**		1.0	0.38	ug/L			08/03/20 17:23	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/03/20 17:23	1
Tetrachloroethene	**37**		1.0	0.33	ug/L			08/03/20 17:23	1
Toluene	1.0	U	1.0	0.35	ug/L			08/03/20 17:23	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/03/20 17:23	1
Trichloroethene	**2.2**		1.0	0.36	ug/L			08/03/20 17:23	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/03/20 17:23	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/03/20 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*		*08/03/20 17:23*	*1*
4-Bromofluorobenzene (Surr)	*87*		*47 - 134*		*08/03/20 17:23*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*08/03/20 17:23*	*1*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/03/20 17:23*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-51 /072720/
Date Collected: 07/27/20 12:20
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 12:53	1
1,1-Dichloroethane	**1.1**		1.0	0.41	ug/L			08/07/20 12:53	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 12:53	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 12:53	1
cis-1,2-Dichloroethene	**3.8**		1.0	0.38	ug/L			08/07/20 12:53	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 12:53	1
Tetrachloroethene	**25**		1.0	0.33	ug/L			08/07/20 12:53	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 12:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 12:53	1
Trichloroethene	**1.4**		1.0	0.36	ug/L			08/07/20 12:53	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 12:53	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 12:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 12:53*	*1*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/07/20 12:53*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 12:53*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/07/20 12:53*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-48 /072720/
Date Collected: 07/27/20 13:30
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.57**	**J**	1.0	0.24	ug/L			08/07/20 13:15	1
1,1-Dichloroethane	**1.3**		1.0	0.41	ug/L			08/07/20 13:15	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 13:15	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 13:15	1
cis-1,2-Dichloroethene	**4.5**		1.0	0.38	ug/L			08/07/20 13:15	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 13:15	1
Tetrachloroethene	**18**		1.0	0.33	ug/L			08/07/20 13:15	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 13:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 13:15	1
Trichloroethene	**11**		1.0	0.36	ug/L			08/07/20 13:15	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 13:15	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 13:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*		*08/07/20 13:15*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/07/20 13:15*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 13:15*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/07/20 13:15*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-49 /072720/
Date Collected: 07/27/20 14:45
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.2**		1.0	0.24	ug/L			08/07/20 13:37	1
1,1-Dichloroethane	**0.75**	**J**	1.0	0.41	ug/L			08/07/20 13:37	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 13:37	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 13:37	1
cis-1,2-Dichloroethene	**2.4**		1.0	0.38	ug/L			08/07/20 13:37	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 13:37	1
Tetrachloroethene	**14**		1.0	0.33	ug/L			08/07/20 13:37	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 13:37	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 13:37	1
Trichloroethene	**28**		1.0	0.36	ug/L			08/07/20 13:37	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 13:37	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 13:37*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/07/20 13:37*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/07/20 13:37*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/07/20 13:37*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: GM-52 /072720/
Date Collected: 07/27/20 15:40
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 13:59	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/07/20 13:59	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 13:59	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 13:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/07/20 13:59	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 13:59	1
Tetrachloroethene	**15**		1.0	0.33	ug/L			08/07/20 13:59	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 13:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 13:59	1
Trichloroethene	**1.0**		1.0	0.36	ug/L			08/07/20 13:59	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 13:59	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 13:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*		*08/07/20 13:59*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/07/20 13:59*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 13:59*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/07/20 13:59*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-91 /072820/
Date Collected: 07/28/20 09:20
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.8**	**J**	5.0	1.2	ug/L			08/07/20 14:43	5
1,1-Dichloroethane	5.0	U	5.0	2.0	ug/L			08/07/20 14:43	5
1,1-Dichloroethene	5.0	U	5.0	2.3	ug/L			08/07/20 14:43	5
Benzene	5.0	U	5.0	1.9	ug/L			08/07/20 14:43	5
cis-1,2-Dichloroethene	**8.9**		5.0	1.9	ug/L			08/07/20 14:43	5
Ethylbenzene	5.0	U	5.0	2.0	ug/L			08/07/20 14:43	5
Tetrachloroethene	**83**		5.0	1.6	ug/L			08/07/20 14:43	5
Toluene	5.0	U	5.0	1.7	ug/L			08/07/20 14:43	5
trans-1,2-Dichloroethene	5.0	U	5.0	2.2	ug/L			08/07/20 14:43	5
Trichloroethene	**53**		5.0	1.8	ug/L			08/07/20 14:43	5
Vinyl chloride	5.0	U	5.0	2.5	ug/L			08/07/20 14:43	5
Xylenes, Total	10	U	10	2.1	ug/L			08/07/20 14:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 130*		*08/07/20 14:43*	*5*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/07/20 14:43*	*5*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 14:43*	*5*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/07/20 14:43*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-92 /072820/
Date Collected: 07/28/20 10:35
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.3**	**J**	2.0	0.48	ug/L			08/10/20 15:35	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/10/20 15:35	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/10/20 15:35	2
Benzene	2.0	U	2.0	0.77	ug/L			08/10/20 15:35	2
cis-1,2-Dichloroethene	**0.79**	**J**	2.0	0.76	ug/L			08/10/20 15:35	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/10/20 15:35	2
Tetrachloroethene	**50**		2.0	0.65	ug/L			08/10/20 15:35	2
Toluene	2.0	U	2.0	0.69	ug/L			08/10/20 15:35	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/10/20 15:35	2
Trichloroethene	**0.96**	**J**	2.0	0.72	ug/L			08/10/20 15:35	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/10/20 15:35	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/10/20 15:35	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/10/20 15:35*	*2*
4-Bromofluorobenzene (Surr)	*83*		*47 - 134*		*08/10/20 15:35*	*2*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/10/20 15:35*	*2*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/10/20 15:35*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-94 /072820/
Date Collected: 07/28/20 11:30
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-16
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.7	U	1.7	0.40	ug/L			08/07/20 16:10	1.67
1,1-Dichloroethane	1.7	U	1.7	0.68	ug/L			08/07/20 16:10	1.67
1,1-Dichloroethene	1.7	U	1.7	0.77	ug/L			08/07/20 16:10	1.67
Benzene	1.7	U	1.7	0.64	ug/L			08/07/20 16:10	1.67
cis-1,2-Dichloroethene	1.7	U	1.7	0.64	ug/L			08/07/20 16:10	1.67
Ethylbenzene	1.7	U	1.7	0.65	ug/L			08/07/20 16:10	1.67
Tetrachloroethene	**27**		1.7	0.55	ug/L			08/07/20 16:10	1.67
Toluene	1.7	U	1.7	0.58	ug/L			08/07/20 16:10	1.67
trans-1,2-Dichloroethene	1.7	U	1.7	0.72	ug/L			08/07/20 16:10	1.67
Trichloroethene	1.7	U	1.7	0.60	ug/L			08/07/20 16:10	1.67
Vinyl chloride	1.7	U	1.7	0.83	ug/L			08/07/20 16:10	1.67
Xylenes, Total	3.3	U	3.3	0.71	ug/L			08/07/20 16:10	1.67

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/07/20 16:10*	*1.67*
4-Bromofluorobenzene (Surr)	*82*		*47 - 134*		*08/07/20 16:10*	*1.67*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/07/20 16:10*	*1.67*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/07/20 16:10*	*1.67*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-93 /072820/
Date Collected: 07/28/20 12:20
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-17
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/10/20 15:57	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/10/20 15:57	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/10/20 15:57	1
Benzene	1.0	U	1.0	0.38	ug/L			08/10/20 15:57	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/10/20 15:57	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/10/20 15:57	1
Tetrachloroethene	**22**		1.0	0.33	ug/L			08/10/20 15:57	1
Toluene	1.0	U	1.0	0.35	ug/L			08/10/20 15:57	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/10/20 15:57	1
Trichloroethene	**0.86**	**J**	1.0	0.36	ug/L			08/10/20 15:57	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/10/20 15:57	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/10/20 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*		*08/10/20 15:57*	*1*
4-Bromofluorobenzene (Surr)	*82*		*47 - 134*		*08/10/20 15:57*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*08/10/20 15:57*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/10/20 15:57*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: WSU-23 /272820/
Date Collected: 07/28/20 14:30
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-18
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.3**	**J**	4.0	0.96	ug/L			08/10/20 16:19	4
1,1-Dichloroethane	4.0	U	4.0	1.6	ug/L			08/10/20 16:19	4
1,1-Dichloroethene	4.0	U	4.0	1.8	ug/L			08/10/20 16:19	4
Benzene	4.0	U	4.0	1.5	ug/L			08/10/20 16:19	4
cis-1,2-Dichloroethene	4.0	U	4.0	1.5	ug/L			08/10/20 16:19	4
Ethylbenzene	4.0	U	4.0	1.6	ug/L			08/10/20 16:19	4
Tetrachloroethene	**73**		4.0	1.3	ug/L			08/10/20 16:19	4
Toluene	4.0	U	4.0	1.4	ug/L			08/10/20 16:19	4
trans-1,2-Dichloroethene	4.0	U	4.0	1.7	ug/L			08/10/20 16:19	4
Trichloroethene	**3.5**	**J**	4.0	1.4	ug/L			08/10/20 16:19	4
Vinyl chloride	4.0	U	4.0	2.0	ug/L			08/10/20 16:19	4
Xylenes, Total	8.0	U	8.0	1.7	ug/L			08/10/20 16:19	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 130*		*08/10/20 16:19*	*4*
4-Bromofluorobenzene (Surr)	*81*		*47 - 134*		*08/10/20 16:19*	*4*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/10/20 16:19*	*4*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/10/20 16:19*	*4*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: DN-13 /072820/
Date Collected: 07/28/20 15:05
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-19
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.56**	**J**	1.0	0.24	ug/L			08/10/20 16:41	1
1,1-Dichloroethane	**0.96**	**J**	1.0	0.41	ug/L			08/10/20 16:41	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/10/20 16:41	1
Benzene	1.0	U	1.0	0.38	ug/L			08/10/20 16:41	1
cis-1,2-Dichloroethene	**4.2**		1.0	0.38	ug/L			08/10/20 16:41	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/10/20 16:41	1
Tetrachloroethene	**1.2**		1.0	0.33	ug/L			08/10/20 16:41	1
Toluene	1.0	U	1.0	0.35	ug/L			08/10/20 16:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/10/20 16:41	1
Trichloroethene	**5.6**		1.0	0.36	ug/L			08/10/20 16:41	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/10/20 16:41	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/10/20 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*		*08/10/20 16:41*	*1*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/10/20 16:41*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 129*		*08/10/20 16:41*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/10/20 16:41*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: RMW-99 /072820/
Date Collected: 07/28/20 15:15
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-20
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.51**	**J**	2.0	0.48	ug/L			08/10/20 17:02	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/10/20 17:02	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/10/20 17:02	2
Benzene	2.0	U	2.0	0.77	ug/L			08/10/20 17:02	2
cis-1,2-Dichloroethene	**1.8**	**J**	2.0	0.76	ug/L			08/10/20 17:02	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/10/20 17:02	2
Tetrachloroethene	**46**		2.0	0.65	ug/L			08/10/20 17:02	2
Toluene	2.0	U	2.0	0.69	ug/L			08/10/20 17:02	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/10/20 17:02	2
Trichloroethene	**0.73**	**J**	2.0	0.72	ug/L			08/10/20 17:02	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/10/20 17:02	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/10/20 17:02	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/10/20 17:02*	*2*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/10/20 17:02*	*2*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/10/20 17:02*	*2*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/10/20 17:02*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: EB-01 /072720/
Date Collected: 07/27/20 16:45
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-21
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/07/20 14:21	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/07/20 14:21	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/07/20 14:21	1
Benzene	1.0	U	1.0	0.38	ug/L			08/07/20 14:21	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/07/20 14:21	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/07/20 14:21	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/07/20 14:21	1
Toluene	1.0	U	1.0	0.35	ug/L			08/07/20 14:21	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/07/20 14:21	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/07/20 14:21	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/07/20 14:21	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/07/20 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*		*08/07/20 14:21*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/07/20 14:21*	*1*
Dibromofluoromethane (Surr)	*88*		*78 - 129*		*08/07/20 14:21*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/07/20 14:21*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: DUP-01 /072820/
Date Collected: 07/28/20 00:00
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-22
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.9**	**J**	3.3	0.80	ug/L			08/10/20 17:24	3.33
1,1-Dichloroethane	**1.5**	**J**	3.3	1.3	ug/L			08/10/20 17:24	3.33
1,1-Dichloroethene	3.3	U	3.3	1.5	ug/L			08/10/20 17:24	3.33
Benzene	3.3	U	3.3	1.3	ug/L			08/10/20 17:24	3.33
cis-1,2-Dichloroethene	**9.5**		3.3	1.3	ug/L			08/10/20 17:24	3.33
Ethylbenzene	3.3	U	3.3	1.3	ug/L			08/10/20 17:24	3.33
Tetrachloroethene	**91**		3.3	1.1	ug/L			08/10/20 17:24	3.33
Toluene	3.3	U	3.3	1.1	ug/L			08/10/20 17:24	3.33
trans-1,2-Dichloroethene	3.3	U	3.3	1.4	ug/L			08/10/20 17:24	3.33
Trichloroethene	**55**		3.3	1.2	ug/L			08/10/20 17:24	3.33
Vinyl chloride	3.3	U	3.3	1.7	ug/L			08/10/20 17:24	3.33
Xylenes, Total	6.7	U	6.7	1.4	ug/L			08/10/20 17:24	3.33

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/10/20 17:24*	*3.33*
4-Bromofluorobenzene (Surr)	*81*		*47 - 134*		*08/10/20 17:24*	*3.33*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*08/10/20 17:24*	*3.33*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/10/20 17:24*	*3.33*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134081-1

Client Sample ID: TB-01 /072820/
Date Collected: 07/28/20 00:00
Date Received: 07/29/20 08:00

Lab Sample ID: 240-134081-23
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	~~U~~ UJ	1.0	0.24	ug/L			08/08/20 00:09	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/08/20 00:09	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/08/20 00:09	1
Benzene	1.0	U	1.0	0.38	ug/L			08/08/20 00:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/08/20 00:09	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/08/20 00:09	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/08/20 00:09	1
Toluene	1.0	U	1.0	0.35	ug/L			08/08/20 00:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/08/20 00:09	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/08/20 00:09	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/08/20 00:09	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/08/20 00:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*		*08/08/20 00:09*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/08/20 00:09*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*08/08/20 00:09*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/08/20 00:09*	*1*

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

U-3112

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.4
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 1 ~~Page 4 of 9~~ PC
Company: ARCADIS U.S., Inc.				Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	S	X	
RMW-4S/072820	7/28/20	1625	G	Water	N	N	X		3	
EB-04/072820/	7/28/20	1655	G	Water	N	N	X		3	
GM-20D/072920/	7/29/20	1430	G	Water	N	N	X		3	
GM-15/072920/	7/29/20	1525	G	Water	N	N	X		3	
~~DUP~~ EB-03/072820/	7/28/20	1640	G	Water	N	N	X		3	
TB-02/072920/	7/29/20	-	G	Water	N	N	X		2	
				Water						
				Water						
				Water						
				Water						
				Water						

240-134166 Chain of Custody

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/29/20 1615	Arcadis		7-29-2020 1615	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time: 7-29-2020 1630	Company ETA	Received by:	Date/Time: 7-30-20 800	Company ETA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: RMW-98/072820/
Date Collected: 07/28/20 16:25
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.55**	**J**	2.0	0.48	ug/L			08/11/20 09:27	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/11/20 09:27	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/11/20 09:27	2
Benzene	2.0	U	2.0	0.77	ug/L			08/11/20 09:27	2
cis-1,2-Dichloroethene	2.0	U	2.0	0.76	ug/L			08/11/20 09:27	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/11/20 09:27	2
Tetrachloroethene	**42**		2.0	0.65	ug/L			08/11/20 09:27	2
Toluene	2.0	U	2.0	0.69	ug/L			08/11/20 09:27	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/11/20 09:27	2
Trichloroethene	2.0	U	2.0	0.72	ug/L			08/11/20 09:27	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/11/20 09:27	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/11/20 09:27	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 09:27*	*2*
4-Bromofluorobenzene (Surr)	*75*		*47 - 134*		*08/11/20 09:27*	*2*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/11/20 09:27*	*2*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/11/20 09:27*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: EB-04/072820/
Date Collected: 07/28/20 16:55
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 01:51	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 01:51	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 01:51	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 01:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 01:51	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 01:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 01:51	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 01:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 01:51	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 01:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 01:51	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 01:51*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 01:51*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 129*		*08/11/20 01:51*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 01:51*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: GM-20D/072920/
Date Collected: 07/29/20 14:30
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 02:13	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 02:13	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 02:13	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 02:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 02:13	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 02:13	1
Tetrachloroethene	**3.1**		1.0	0.33	ug/L			08/11/20 02:13	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 02:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 02:13	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 02:13	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 02:13	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 02:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 02:13*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 02:13*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/11/20 02:13*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 02:13*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: GM-15/072920/
Date Collected: 07/29/20 15:25
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 02:35	1
1,1-Dichloroethane	**2.6**		1.0	0.41	ug/L			08/11/20 02:35	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 02:35	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 02:35	1
cis-1,2-Dichloroethene	**12**		1.0	0.38	ug/L			08/11/20 02:35	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 02:35	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 02:35	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 02:35	1
trans-1,2-Dichloroethene	**0.64**	**J**	1.0	0.43	ug/L			08/11/20 02:35	1
Trichloroethene	**4.5**		1.0	0.36	ug/L			08/11/20 02:35	1
Vinyl chloride	**0.56**	**J**	1.0	0.50	ug/L			08/11/20 02:35	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 02:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 02:35*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 02:35*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 02:35*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 02:35*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: EB-03/072820/
Date Collected: 07/28/20 16:40
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 02:56	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 02:56	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 02:56	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 02:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 02:56	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 02:56	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 02:56	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 02:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 02:56	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 02:56	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 02:56	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 130*		*08/11/20 02:56*	*1*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/11/20 02:56*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 02:56*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 02:56*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: TB-02/072920/
Date Collected: 07/29/20 00:00
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 03:18	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 03:18	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 03:18	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 03:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 03:18	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 03:18	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 03:18	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 03:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 03:18	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 03:18	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 03:18	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*75 - 130*		*08/11/20 03:18*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 03:18*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 03:18*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 03:18*	*1*

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

0.3 | 1.2

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Derrick Gossett	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.5
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 1 ~~Page 5 of 6~~
Company: ARCADIS U.S., Inc.				Job #:

Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:
City: Columbus	TAT Requested (days): Standard
State, Zip: OH, 43235	PO #: 30042873.0004B
Phone:	WO #:
Email: carolyn.grogan@arcadis.com	Project #: 24006917
Project Name: Racer Moraine Annual	SSOW#:
Site: RACER Moraine	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
HR-4/072920/	7/29/20	0930	G	Water	N	Y	X		9	MS/MSD
W-2-N/072920/	7/29/20	1050	G	Water	N	N	X		3	
W-3-N/072920/	7/29/20	1220	G	Water	N	N	X		3	
W-4-N/072920/	7/29/20	1330	G	Water	N	N	X		3	
DUP-02/072920/	7/29/20	—	G	Water	N	N	X		3	
				Water						

210 Dayton

240-134167 Chain of Custody

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 7/29/20 1615	Company: Arcadis	Received by:	Date/Time: 7-29-2020 1615	Company: ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time: 7-29-2020 1630	Company: ETA	Received by:	Date/Time: 7-30-20 800	Company: ETAC

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

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8/13/2020

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: HR-4/072920/
Date Collected: 07/29/20 09:30
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.9**		1.0	0.24	ug/L			08/11/20 03:40	1
1,1-Dichloroethane	**1.3**		1.0	0.41	ug/L			08/11/20 03:40	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 03:40	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 03:40	1
cis-1,2-Dichloroethene	**0.42**	**J**	1.0	0.38	ug/L			08/11/20 03:40	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 03:40	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 03:40	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 03:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 03:40	1
Trichloroethene	**0.36**	**J**	1.0	0.36	ug/L			08/11/20 03:40	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 03:40	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 03:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/11/20 03:40*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 03:40*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 03:40*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 03:40*	*1*

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: W-2-N/072920/
Date Collected: 07/29/20 10:50
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 04:45	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 04:45	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 04:45	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 04:45	1
cis-1,2-Dichloroethene	**1.8**		1.0	0.38	ug/L			08/11/20 04:45	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 04:45	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 04:45	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 04:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 04:45	1
Trichloroethene	**0.79**	**J**	1.0	0.36	ug/L			08/11/20 04:45	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 04:45	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 04:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*		*08/11/20 04:45*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 04:45*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*08/11/20 04:45*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 04:45*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: W-3-N/072920/
Date Collected: 07/29/20 12:20
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 05:07	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 05:07	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 05:07	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 05:07	1
cis-1,2-Dichloroethene	**13**		1.0	0.38	ug/L			08/11/20 05:07	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 05:07	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 05:07	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 05:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 05:07	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 05:07	1
Vinyl chloride	**0.88**	**J**	1.0	0.50	ug/L			08/11/20 05:07	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 05:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*		*08/11/20 05:07*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 05:07*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/11/20 05:07*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 05:07*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: W-4-N/072920/
Date Collected: 07/29/20 13:30
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 05:29	1
1,1-Dichloroethane	**7.3**		1.0	0.41	ug/L			08/11/20 05:29	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 05:29	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 05:29	1
cis-1,2-Dichloroethene	**8.2**		1.0	0.38	ug/L			08/11/20 05:29	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 05:29	1
Tetrachloroethene	**0.81**	**J**	1.0	0.33	ug/L			08/11/20 05:29	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 05:29	1
trans-1,2-Dichloroethene	**0.55**	**J**	1.0	0.43	ug/L			08/11/20 05:29	1
Trichloroethene	**6.9**		1.0	0.36	ug/L			08/11/20 05:29	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 05:29	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 05:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 130*		*08/11/20 05:29*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 05:29*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/11/20 05:29*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 05:29*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: DUP-02/072920/
Date Collected: 07/29/20 00:00
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.9**		1.0	0.24	ug/L			08/11/20 05:51	1
1,1-Dichloroethane	**1.3**		1.0	0.41	ug/L			08/11/20 05:51	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 05:51	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 05:51	1
cis-1,2-Dichloroethene	**0.52**	**J**	1.0	0.38	ug/L			08/11/20 05:51	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 05:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 05:51	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 05:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 05:51	1
Trichloroethene	**0.36**	**J**	1.0	0.36	ug/L			08/11/20 05:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 05:51	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 05:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 05:51*	*1*
4-Bromofluorobenzene (Surr)	*76*		*47 - 134*		*08/11/20 05:51*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/11/20 05:51*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 05:51*	*1*

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

0-3/12

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Hannah Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.3
Client Contact: Carolyn Grogan	Phone: 937-269-9271	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 1 ~~Page 3 of 9~~
Company: ARCADIS U.S., Inc.				Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	VOC 10x Dilution	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S	A		
HR-17/072920/	7/29/20	0955	G	Water	N	N	X		X	4	
W-2-S/072920/	7/29/20	1115	G	Water	N	N	X			3	
W-3-S/072920/	7/29/20	1215	G	Water	N	N	X			3	
W-4-S/072920/	7/29/20	1325	G	Water	N	N	X		X	4	
HR-1/072920/	7/29/20	1510	G	Water	N	N	X			3	
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

240-134169 Chain of Custody

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Hannah Smith	7/29/20 1540	Arcadis		7/29/20 1540	Arcadis
2		7/29/20 1615	Arcadis		7-29-2020 1615	ETA
3		7-29-2020 1630	ETA		7-30-20 800	TAC

Custody Seals Intact: △ Yes △ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: HR-17/072920/
Date Collected: 07/29/20 09:55
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**3.6**		2.0	0.48	ug/L			08/11/20 21:56	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/11/20 21:56	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/11/20 21:56	2
Benzene	2.0	U	2.0	0.77	ug/L			08/11/20 21:56	2
cis-1,2-Dichloroethene	2.0	U	2.0	0.76	ug/L			08/11/20 21:56	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/11/20 21:56	2
Tetrachloroethene	**160**		10	3.3	ug/L			08/11/20 13:56	10
Toluene	2.0	U	2.0	0.69	ug/L			08/11/20 21:56	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/11/20 21:56	2
Trichloroethene	2.0	U	2.0	0.72	ug/L			08/11/20 21:56	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/11/20 21:56	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/11/20 21:56	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 13:56*	*10*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/11/20 21:56*	*2*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/11/20 13:56*	*10*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 21:56*	*2*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 13:56*	*10*
Dibromofluoromethane (Surr)	*95*		*78 - 129*		*08/11/20 21:56*	*2*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 13:56*	*10*
Toluene-d8 (Surr)	*91*		*69 - 122*		*08/11/20 21:56*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: W-2-S/072920/
Date Collected: 07/29/20 11:15
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.85**	**J**	1.0	0.24	ug/L			08/11/20 14:17	1
1,1-Dichloroethane	**0.60**	**J**	1.0	0.41	ug/L			08/11/20 14:17	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 14:17	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 14:17	1
cis-1,2-Dichloroethene	**1.7**		1.0	0.38	ug/L			08/11/20 14:17	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 14:17	1
Tetrachloroethene	**6.3**		1.0	0.33	ug/L			08/11/20 14:17	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 14:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 14:17	1
Trichloroethene	**3.6**		1.0	0.36	ug/L			08/11/20 14:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 14:17	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 14:17*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 14:17*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*08/11/20 14:17*	*1*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/11/20 14:17*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: W-3-S/072920/
Date Collected: 07/29/20 12:15
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.6**		1.0	0.24	ug/L			08/11/20 22:18	1
1,1-Dichloroethane	**0.48**	**J**	1.0	0.41	ug/L			08/11/20 22:18	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 22:18	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 22:18	1
cis-1,2-Dichloroethene	**1.9**		1.0	0.38	ug/L			08/11/20 22:18	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 22:18	1
Tetrachloroethene	**110**		5.0	1.6	ug/L			08/11/20 14:39	5
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 22:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 22:18	1
Trichloroethene	**2.0**		1.0	0.36	ug/L			08/11/20 22:18	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 22:18	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 14:39*	*5*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*08/11/20 22:18*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 14:39*	*5*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 22:18*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 14:39*	*5*
Dibromofluoromethane (Surr)	*99*		*78 - 129*		*08/11/20 22:18*	*1*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/11/20 14:39*	*5*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/11/20 22:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: W-4-S/072920/
Date Collected: 07/29/20 13:25
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.71**	**J**	2.0	0.48	ug/L			08/11/20 15:01	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/11/20 15:01	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/11/20 15:01	2
Benzene	2.0	U	2.0	0.77	ug/L			08/11/20 15:01	2
cis-1,2-Dichloroethene	**1.0**	**J**	2.0	0.76	ug/L			08/11/20 15:01	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/11/20 15:01	2
Tetrachloroethene	**37**		2.0	0.65	ug/L			08/11/20 15:01	2
Toluene	2.0	U	2.0	0.69	ug/L			08/11/20 15:01	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/11/20 15:01	2
Trichloroethene	**9.1**		2.0	0.72	ug/L			08/11/20 15:01	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/11/20 15:01	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/11/20 15:01	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 15:01*	*2*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 15:01*	*2*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*08/11/20 15:01*	*2*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 15:01*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: HR-1/072920/
Date Collected: 07/29/20 15:10
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	10	U	10	2.4	ug/L			08/12/20 13:48	10
1,1-Dichloroethane	10	U	10	4.1	ug/L			08/12/20 13:48	10
1,1-Dichloroethene	10	U	10	4.6	ug/L			08/12/20 13:48	10
Benzene	10	U	10	3.8	ug/L			08/12/20 13:48	10
cis-1,2-Dichloroethene	**20**		10	3.8	ug/L			08/12/20 13:48	10
Ethylbenzene	10	U	10	3.9	ug/L			08/12/20 13:48	10
Tetrachloroethene	**120**		10	3.3	ug/L			08/12/20 13:48	10
Toluene	10	U	10	3.5	ug/L			08/12/20 13:48	10
trans-1,2-Dichloroethene	10	U	10	4.3	ug/L			08/12/20 13:48	10
Trichloroethene	**25**		10	3.6	ug/L			08/12/20 13:48	10
Vinyl chloride	10	U	10	5.0	ug/L			08/12/20 13:48	10
Xylenes, Total	20	U	20	4.2	ug/L			08/12/20 13:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/12/20 13:48*	*10*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/12/20 13:48*	*10*
Dibromofluoromethane (Surr)	*96*		*78 - 129*		*08/12/20 13:48*	*10*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/12/20 13:48*	*10*

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

0.2/1.1

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.6
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 2 Page 6 of 9
Company: ARCADIS U.S., Inc.				Job #:

Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Columbus	TAT Requested (days): Standard		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: OH, 43235			
Phone:	PO #: 30042873.0004B		Other:
Email: carolyn.grogan@arcadis.com	WO #:		
Project Name: Racer Moraine Annual	Project #: 24006917		
Site: RACER Moraine	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
FB-16/072920/	7/29/20	1635	G	Water	N	N	X		3	
EB-06/072920/	7/29/20	1700	G	Water	N	N	X		3	
RMW-95/073020/	7/30/20	0930	G	Water	N	N	X		3	
RMW-96/073020/	7/30/20	1050	G	Water	N	N	X		3	
RMW-97/073020/	7/30/20	1200	G	Water	N	N	X		3	
GM-35/073020/	7/30/20	1435	G	Water	N	N	X		3	
GM-9/073020/	7/30/20	0910	G	Water	N	N	X		3	
GM-80/073020/	7/30/20	1025	G	Water	N	N	X		3	
~~EAST/070~~ EAST/073020/	7/30/20	1145	G	Water	N	N	X		3	
WEST/073020/	7/30/20	1310	G	Water	N	N	X		3	
GM-36/073020/	7/30/20	1410	G	Water	N	N	X		3	

240-134220 Chain of Custody

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/30/20 1616	Arcadis		7-30-20 16:21	ETA
2		7-30-20 16:30	ETA		7-31-20 800	ETA
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

0.2/1.1

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.7
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 2 of 2 ~~Page 2 of 2~~
Company: ARCADIS U.S., Inc.				Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
GM-35/0730201	7/30/20	1505	G	Water	N	N	X		3	
GM-37/0730201	7/30/20	1535	G	Water	N	N	X		3	
~~EB-05/073020~~ EB-05/0729201	7/29/20	1640	G	Water	N	N	X		3	
EB-07/0730201	7/30/20	1545	G	Water	N	N	X		3	
EB-08/0730201	7/30/20	1600	G	Water	N	N	X		3	
TB-03/0730201	7/30/20	-	G	Water	N	N	X		2	
				Water						
				Water						
				Water						
				Water						
				Water						

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	7/30/20 1616	Arcadis	[signature]	7-30-20 16:20	ETA
2	[signature]	7-30-20 16:30	ETA	[signature]	7-31-20 808	ETA
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: HR-16 /072920/
Date Collected: 07/29/20 16:35
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.52**	**J**	1.0	0.24	ug/L			08/11/20 13:56	1
1,1-Dichloroethane	**0.67**	**J**	1.0	0.41	ug/L			08/11/20 13:56	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 13:56	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 13:56	1
cis-1,2-Dichloroethene	**0.45**	**J**	1.0	0.38	ug/L			08/11/20 13:56	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 13:56	1
Tetrachloroethene	**0.42**	**J**	1.0	0.33	ug/L			08/11/20 13:56	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 13:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 13:56	1
Trichloroethene	**2.8**		1.0	0.36	ug/L			08/11/20 13:56	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 13:56	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 130*		*08/11/20 13:56*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/11/20 13:56*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 129*		*08/11/20 13:56*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 13:56*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-06 /072920/
Date Collected: 07/29/20 17:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 14:18	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 14:18	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 14:18	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 14:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 14:18	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 14:18	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 14:18	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 14:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 14:18	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 14:18	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 14:18	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 14:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*08/11/20 14:18*	*1*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*		*08/11/20 14:18*	*1*
Dibromofluoromethane (Surr)	*113*		*78 - 129*		*08/11/20 14:18*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 14:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: RMW-95 /073020/
Date Collected: 07/30/20 09:30
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.48**	**J**	1.0	0.24	ug/L			08/11/20 14:41	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 14:41	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 14:41	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 14:41	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 14:41	1
Tetrachloroethene	**8.4**		1.0	0.33	ug/L			08/11/20 14:41	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 14:41	1
Trichloroethene	**1.2**		1.0	0.36	ug/L			08/11/20 14:41	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 14:41	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*08/11/20 14:41*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/11/20 14:41*	*1*
Dibromofluoromethane (Surr)	*115*		*78 - 129*		*08/11/20 14:41*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/11/20 14:41*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: RMW-96 /073020/
Date Collected: 07/30/20 10:50
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 15:03	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 15:03	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 15:03	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 15:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 15:03	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 15:03	1
Tetrachloroethene	**2.7**		1.0	0.33	ug/L			08/11/20 15:03	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 15:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 15:03	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 15:03	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 15:03	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 15:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 15:03*	*1*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/11/20 15:03*	*1*
Dibromofluoromethane (Surr)	*117*		*78 - 129*		*08/11/20 15:03*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 15:03*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: RMW-97 /073020/
Date Collected: 07/30/20 12:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/06/20 11:59	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/06/20 11:59	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/06/20 11:59	1
Benzene	1.0	U	1.0	0.38	ug/L			08/06/20 11:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/06/20 11:59	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/06/20 11:59	1
Tetrachloroethene	**3.3**		1.0	0.33	ug/L			08/06/20 11:59	1
Toluene	1.0	U	1.0	0.35	ug/L			08/06/20 11:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/06/20 11:59	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/06/20 11:59	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/06/20 11:59	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/06/20 11:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/06/20 11:59*	*1*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/06/20 11:59*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 129*		*08/06/20 11:59*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/06/20 11:59*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-38 /073020/
Date Collected: 07/30/20 14:25
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.4**		1.0	0.24	ug/L			08/11/20 15:26	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 15:26	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 15:26	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 15:26	1
cis-1,2-Dichloroethene	**1.5**	J	1.0	0.38	ug/L			08/11/20 15:26	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 15:26	1
Tetrachloroethene	**20**		1.0	0.33	ug/L			08/11/20 15:26	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 15:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 15:26	1
Trichloroethene	**3.4**		1.0	0.36	ug/L			08/11/20 15:26	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 15:26	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 15:26*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/11/20 15:26*	*1*
Dibromofluoromethane (Surr)	*117*		*78 - 129*		*08/11/20 15:26*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 15:26*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-9 /073020/
Date Collected: 07/30/20 09:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.90**	**J**	1.0	0.24	ug/L			08/11/20 15:48	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 15:48	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 15:48	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 15:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 15:48	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 15:48	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 15:48	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 15:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 15:48	1
Trichloroethene	**13**		1.0	0.36	ug/L			08/11/20 15:48	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 15:48	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 130*		*08/11/20 15:48*	*1*
4-Bromofluorobenzene (Surr)	*103*		*47 - 134*		*08/11/20 15:48*	*1*
Dibromofluoromethane (Surr)	*120*		*78 - 129*		*08/11/20 15:48*	*1*
Toluene-d8 (Surr)	*103*		*69 - 122*		*08/11/20 15:48*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-80 /073020/
Date Collected: 07/30/20 10:25
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 16:10	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 16:10	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 16:10	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 16:10	1
cis-1,2-Dichloroethene	**0.92**	**J**	1.0	0.38	ug/L			08/11/20 16:10	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 16:10	1
Tetrachloroethene	**12**		1.0	0.33	ug/L			08/11/20 16:10	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 16:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 16:10	1
Trichloroethene	**2.0**		1.0	0.36	ug/L			08/11/20 16:10	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 16:10	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 16:10*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 16:10*	*1*
Dibromofluoromethane (Surr)	*119*		*78 - 129*		*08/11/20 16:10*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/11/20 16:10*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EAST /073020/
Date Collected: 07/30/20 11:45
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 16:32	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 16:32	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 16:32	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 16:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 16:32	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 16:32	1
Tetrachloroethene	**15**		1.0	0.33	ug/L			08/11/20 16:32	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 16:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 16:32	1
Trichloroethene	**1.6**		1.0	0.36	ug/L			08/11/20 16:32	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 16:32	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*08/11/20 16:32*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 16:32*	*1*
Dibromofluoromethane (Surr)	*117*		*78 - 129*		*08/11/20 16:32*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 16:32*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: WEST /073020/
Date Collected: 07/30/20 13:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 16:54	1
1,1-Dichloroethane	**1.7**	J	1.0	0.41	ug/L			08/11/20 16:54	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 16:54	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 16:54	1
cis-1,2-Dichloroethene	**6.0**	J	1.0	0.38	ug/L			08/11/20 16:54	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 16:54	1
Tetrachloroethene	**13**		1.0	0.33	ug/L			08/11/20 16:54	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 16:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 16:54	1
Trichloroethene	**4.4**		1.0	0.36	ug/L			08/11/20 16:54	1
Vinyl chloride	**0.98**	J	1.0	0.50	ug/L			08/11/20 16:54	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 16:54*	*1*
4-Bromofluorobenzene (Surr)	*104*		*47 - 134*		*08/11/20 16:54*	*1*
Dibromofluoromethane (Surr)	*121*		*78 - 129*		*08/11/20 16:54*	*1*
Toluene-d8 (Surr)	*103*		*69 - 122*		*08/11/20 16:54*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-36 /073020/
Date Collected: 07/30/20 14:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 17:17	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 17:17	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 17:17	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 17:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 17:17	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 17:17	1
Tetrachloroethene	**11**		1.0	0.33	ug/L			08/11/20 17:17	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 17:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 17:17	1
Trichloroethene	**0.82**	**J**	1.0	0.36	ug/L			08/11/20 17:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 17:17	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*08/11/20 17:17*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 17:17*	*1*
Dibromofluoromethane (Surr)	*116*		*78 - 129*		*08/11/20 17:17*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 17:17*	*1*

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-35 /073020/

Date Collected: 07/30/20 15:05
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-12

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	20	U	20	4.8	ug/L			08/11/20 17:39	20
1,1-Dichloroethane	**19**	**J**	20	8.1	ug/L			08/11/20 17:39	20
1,1-Dichloroethene	20	U	20	9.2	ug/L			08/11/20 17:39	20
Benzene	20	U	20	7.7	ug/L			08/11/20 17:39	20
cis-1,2-Dichloroethene	**92**	~~F1~~ J	20	7.6	ug/L			08/11/20 17:39	20
Ethylbenzene	20	U	20	7.8	ug/L			08/11/20 17:39	20
Tetrachloroethene	**13**	**J**	20	6.5	ug/L			08/11/20 17:39	20
Toluene	20	U	20	6.9	ug/L			08/11/20 17:39	20
trans-1,2-Dichloroethene	**9.0**	**J**	20	8.7	ug/L			08/11/20 17:39	20
Trichloroethene	**150**		20	7.2	ug/L			08/11/20 17:39	20
Vinyl chloride	20	U	20	9.9	ug/L			08/11/20 17:39	20
Xylenes, Total	40	U	40	8.5	ug/L			08/11/20 17:39	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 130*		*08/11/20 17:39*	*20*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/11/20 17:39*	*20*
Dibromofluoromethane (Surr)	*112*		*78 - 129*		*08/11/20 17:39*	*20*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/11/20 17:39*	*20*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-37 /073020/
Date Collected: 07/30/20 15:35
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 18:01	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 18:01	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 18:01	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 18:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 18:01	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 18:01	1
Tetrachloroethene	**7.7**		1.0	0.33	ug/L			08/11/20 18:01	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 18:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 18:01	1
Trichloroethene	**0.89**	**J**	1.0	0.36	ug/L			08/11/20 18:01	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 18:01	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*08/11/20 18:01*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 18:01*	*1*
Dibromofluoromethane (Surr)	*114*		*78 - 129*		*08/11/20 18:01*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 18:01*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-05 /072920/
Date Collected: 07/29/20 16:40
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 18:24	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 18:24	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 18:24	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 18:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 18:24	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 18:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 18:24	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 18:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 18:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 18:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 18:24	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 18:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 130*		*08/11/20 18:24*	*1*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*		*08/11/20 18:24*	*1*
Dibromofluoromethane (Surr)	*108*		*78 - 129*		*08/11/20 18:24*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 18:24*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-07 /073020/
Date Collected: 07/30/20 15:45
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 17:06	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 17:06	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 17:06	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 17:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 17:06	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 17:06	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 17:06	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 17:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 17:06	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 17:06	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 17:06	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 130*		*08/12/20 17:06*	*1*
4-Bromofluorobenzene (Surr)	*91*		*47 - 134*		*08/12/20 17:06*	*1*
Dibromofluoromethane (Surr)	*111*		*78 - 129*		*08/12/20 17:06*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/12/20 17:06*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-08 /073020/
Date Collected: 07/30/20 16:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-16
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 17:29	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 17:29	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 17:29	1
Benzene	**0.62**	**J**	1.0	0.38	ug/L			08/12/20 17:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 17:29	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 17:29	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 17:29	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 17:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 17:29	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 17:29	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 17:29	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/12/20 17:29*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*08/12/20 17:29*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 129*		*08/12/20 17:29*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/12/20 17:29*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: TB-03 /073020/
Date Collected: 07/30/20 00:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-17
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 17:51	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 17:51	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 17:51	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 17:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 17:51	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 17:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 17:51	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 17:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 17:51	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 17:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 17:51	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 17:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*08/12/20 17:51*	*1*
4-Bromofluorobenzene (Surr)	*88*		*47 - 134*		*08/12/20 17:51*	*1*
Dibromofluoromethane (Surr)	*106*		*78 - 129*		*08/12/20 17:51*	*1*
Toluene-d8 (Surr)	*90*		*69 - 122*		*08/12/20 17:51*	*1*

fins TestAmerica, Canton
huffel Street NW
Canton, OH 44720
: 330-497-9396 Fax: 330-497-0772

4.0149

Chain of Custody Record

4-0149

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.8
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 2 ~~Page 6 of 8~~ pc
Company: ARCADIS U.S., Inc				Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetale	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	VOC 8260B 10x Dilution	Total Number of containers	Special Instructions/No
			Preservation Code:				A	S			
GM-8/0731201	7/31/20	0950	G	Water	N	N	X	X		5	
GM-6/0731201	7/31/20	1120	G	Water	N	N	X	X		5	
GM-2/0731201	7/31/20	1245	G	Water	N	N	X	X		5	
GM-32/0731201	7/31/20	1420	G	Water	N	N	X	X		5	
GM-19S/0731201	7/31/20	1545	G	Water	N	N	X	X		5	
GM-21/0731201	7/31/20	0935	G	Water	N	N	X	X		5	
GM-28R/0731201	7/31/20	1115	G	Water	N	Y	X	X		11	MS/MSD for VOCs
GM-29/0731201	7/31/20	1240	G	Water	N	N	X	X	X	6	10x Dilution VOC
GM-27/0731201	7/31/20	1350	G	Water	N	N	X	X		5	
GM-23/0731201	7/31/20	1435	G	Water	N	N	X	X	X	6	10x dilution VOC
DUP-03/0731201	7/31/20	-	G	Water	N	N	X	X		5	

240-134309 Chain of Custody

210

Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7/31/20 1730	Arcadis		8-1-20 0950	EJF
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 2 of 2

Lab Work Order #

Send Results to:

Contact & Company Name: Carolyn Grogan/Arcadis

Telephone:

Address: 100 E. Campus View Blvd Suite 200

Fax:

City: Columbus State: OH Zip: 43235

E-mail Address: Carolyn.grogan@arcadis.com

Project Name/Location (City, State): RACER Moraine, OH

Project #: 30042873.00043

Sampler's Printed Name: D. Gorsett, H. Smith

Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	8260B-TCL Volatile Analyte List	REMARKS
						B		3	40mL VOA		
EB-09/073120/	7/31/20	1525		✓	W					X	
EB-10/073120/	7/31/20	1610		✓	W					X	
TB-04/073120/	7/31/20	-		✓	W					X	2 containers

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Eurofins TestAmerica	Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact	Printed Name: Derreck Gorsett	Printed Name:	Printed Name:	Printed Name:
☑ Cooler packed with ice (✓)		Signature:	Signature: Matt Snyder	Signature:	Signature:
Specify Turnaround Requirements: Standard	Sample Receipt:	Firm: Arcadis	Firm/Courier: EJA	Firm/Courier:	Firm:
Shipping Tracking #:	Condition/Cooler Temp: _____	Date/Time: 7/31/20 1730	Date/Time: 8-1-20 0950	Date/Time:	Date/Time:

20730826 CofC AR Form 08.27.2015

Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by Arcadis

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 8 /073120/

Date Collected: 07/31/20 09:50
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 18:02	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 18:02	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 18:02	1
Benzene	~~1.3~~	1.3 UB	~~1.0~~	1.3 0.38	ug/L			08/12/20 18:02	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 18:02	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 18:02	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 18:02	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 18:02	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 18:02	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 18:02	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 18:02	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/12/20 18:02*	*1*
4-Bromofluorobenzene (Surr)	*104*		*47 - 134*		*08/12/20 18:02*	*1*
Dibromofluoromethane (Surr)	*109*		*78 - 129*		*08/12/20 18:02*	*1*
Toluene-d8 (Surr)	*83*		*69 - 122*		*08/12/20 18:02*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**6.8**		1.0	0.14	mg/L			08/06/20 15:45	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 6 /073120/

Date Collected: 07/31/20 11:20
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 18:26	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 18:26	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 18:26	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 18:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 18:26	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 18:26	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 18:26	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 18:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 18:26	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 18:26	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 18:26	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 130*		*08/12/20 18:26*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/12/20 18:26*	*1*
Dibromofluoromethane (Surr)	*130*	*X*	*78 - 129*		*08/12/20 18:26*	*1*
Toluene-d8 (Surr)	*72*		*69 - 122*		*08/12/20 18:26*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**3.2**		1.0	0.14	mg/L			08/06/20 21:04	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 2 /073120/

Date Collected: 07/31/20 12:45
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-3

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 18:50	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 18:50	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 18:50	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 18:50	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 18:50	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 18:50	1
Tetrachloroethene	**30**		1.0	0.33	ug/L			08/13/20 17:41	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 18:50	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 18:50	1
Trichloroethene	**3.9**		1.0	0.36	ug/L			08/12/20 18:50	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 18:50	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/12/20 18:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*75 - 130*		*08/13/20 17:41*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/12/20 18:50*	*1*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/13/20 17:41*	*1*
Dibromofluoromethane (Surr)	*114*		*78 - 129*		*08/12/20 18:50*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/13/20 17:41*	*1*
Toluene-d8 (Surr)	*81*		*69 - 122*		*08/12/20 18:50*	*1*
Toluene-d8 (Surr)	*90*		*69 - 122*		*08/13/20 17:41*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**0.92**	**J**	1.0	0.14	mg/L			08/06/20 16:19	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 32 /073120/
Date Collected: 07/31/20 14:20
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 19:14	1
1,1-Dichloroethane	**0.43**	**J**	1.0	0.41	ug/L			08/12/20 19:14	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 19:14	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 19:14	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 19:14	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 19:14	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 19:14	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 19:14	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 19:14	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 19:14	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 19:14	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 19:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*08/12/20 19:14*	*1*
4-Bromofluorobenzene (Surr)	*76*		*47 - 134*		*08/12/20 19:14*	*1*
Dibromofluoromethane (Surr)	*113*		*78 - 129*		*08/12/20 19:14*	*1*
Toluene-d8 (Surr)	*80*		*69 - 122*		*08/12/20 19:14*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**3.0**		1.0	0.14	mg/L			08/06/20 16:51	1

Client Sample ID: GM - 19S /073120/

Date Collected: 07/31/20 15:45
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-5

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 19:38	1
1,1-Dichloroethane	**1.1**		1.0	0.41	ug/L			08/12/20 19:38	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 19:38	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 19:38	1
cis-1,2-Dichloroethene	**28**		1.0	0.38	ug/L			08/12/20 19:38	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 19:38	1
Tetrachloroethene	**1.5**		1.0	0.33	ug/L			08/13/20 18:06	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 19:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 19:38	1
Trichloroethene	**2.7**		1.0	0.36	ug/L			08/12/20 19:38	1
Vinyl chloride	**2.9**		1.0	0.50	ug/L			08/13/20 18:06	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*75 - 130*		*08/12/20 19:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*08/13/20 18:06*	*1*
4-Bromofluorobenzene (Surr)	*74*		*47 - 134*		*08/12/20 19:38*	*1*
4-Bromofluorobenzene (Surr)	*98*		*47 - 134*		*08/13/20 18:06*	*1*
Dibromofluoromethane (Surr)	*113*		*78 - 129*		*08/12/20 19:38*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/13/20 18:06*	*1*
Toluene-d8 (Surr)	*80*		*69 - 122*		*08/12/20 19:38*	*1*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/13/20 18:06*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**1.5**		1.0	0.14	mg/L			08/06/20 17:24	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 21 /073120/
Date Collected: 07/31/20 09:35
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 20:01	1
1,1-Dichloroethane	**7.0**		1.0	0.41	ug/L			08/12/20 20:01	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 20:01	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 20:01	1
cis-1,2-Dichloroethene	**11**		1.0	0.38	ug/L			08/12/20 20:01	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 20:01	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 20:01	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 20:01	1
trans-1,2-Dichloroethene	**1.3**		1.0	0.43	ug/L			08/12/20 20:01	1
Trichloroethene	**1.7**		1.0	0.36	ug/L			08/12/20 20:01	1
Vinyl chloride	**8.0**		1.0	0.50	ug/L			08/13/20 18:31	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 130*		*08/12/20 20:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*08/13/20 18:31*	*1*
4-Bromofluorobenzene (Surr)	*76*		*47 - 134*		*08/12/20 20:01*	*1*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*		*08/13/20 18:31*	*1*
Dibromofluoromethane (Surr)	*111*		*78 - 129*		*08/12/20 20:01*	*1*
Dibromofluoromethane (Surr)	*89*		*78 - 129*		*08/13/20 18:31*	*1*
Toluene-d8 (Surr)	*83*		*69 - 122*		*08/12/20 20:01*	*1*
Toluene-d8 (Surr)	*89*		*69 - 122*		*08/13/20 18:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**62**		2.0	0.28	mg/L			08/06/20 18:17	2

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 28R /073120/

Date Collected: 07/31/20 11:15
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-7

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 18:43	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 18:43	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 18:43	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 18:43	1
cis-1,2-Dichloroethene	**0.91**	**J**	1.0	0.38	ug/L			08/12/20 18:43	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 18:43	1
Tetrachloroethene	**0.92**	**J**	1.0	0.33	ug/L			08/12/20 18:43	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 18:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 18:43	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 18:43	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 18:43	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*08/12/20 18:43*	*1*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/12/20 18:43*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 129*		*08/12/20 18:43*	*1*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/12/20 18:43*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**1.5**		1.0	0.14	mg/L			08/06/20 14:53	1

Client Sample ID: GM - 29 /073120/
Lab Sample ID: 240-134309-8

Date Collected: 07/31/20 12:40
Matrix: Water

Date Received: 08/01/20 09:50

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**7.8**		1.3	0.32	ug/L			08/13/20 22:40	1.33
1,1-Dichloroethane	**9.5**		1.3	0.54	ug/L			08/13/20 22:40	1.33
1,1-Dichloroethene	1.3	U	1.3	0.61	ug/L			08/13/20 22:40	1.33
Benzene	1.3	U	1.3	0.51	ug/L			08/13/20 22:40	1.33
cis-1,2-Dichloroethene	**380**		13	5.1	ug/L			08/12/20 19:58	13.33
Ethylbenzene	1.3	U	1.3	0.52	ug/L			08/13/20 22:40	1.33
Tetrachloroethene	**11**		1.3	0.43	ug/L			08/13/20 22:40	1.33
Toluene	1.3	U	1.3	0.46	ug/L			08/13/20 22:40	1.33
trans-1,2-Dichloroethene	**25**		1.3	0.58	ug/L			08/13/20 22:40	1.33
Trichloroethene	**290**		13	4.8	ug/L			08/12/20 19:58	13.33
Vinyl chloride	**42**		1.3	0.66	ug/L			08/13/20 22:40	1.33
Xylenes, Total	2.7	U	2.7	0.56	ug/L			08/13/20 22:40	1.33

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 130*		*08/12/20 19:58*	*13.33*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*		*08/13/20 22:40*	*1.33*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*		*08/12/20 19:58*	*13.33*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/13/20 22:40*	*1.33*
Dibromofluoromethane (Surr)	*88*		*78 - 129*		*08/12/20 19:58*	*13.33*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/13/20 22:40*	*1.33*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/12/20 19:58*	*13.33*
Toluene-d8 (Surr)	*91*		*69 - 122*		*08/13/20 22:40*	*1.33*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**9.3**		1.0	0.14	mg/L			08/07/20 03:33	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 27 /073120/
Date Collected: 07/31/20 13:50
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 20:25	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 20:25	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 20:25	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 20:25	1
cis-1,2-Dichloroethene	**7.7**		1.0	0.38	ug/L			08/12/20 20:25	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 20:25	1
Tetrachloroethene	**0.85**	**J** *	1.0	0.33	ug/L			08/12/20 20:25	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 20:25	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 20:25	1
Trichloroethene	**22**		1.0	0.36	ug/L			08/12/20 20:25	1
Vinyl chloride	1.0	U *	1.0	0.50	ug/L			08/12/20 20:25	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 130*		*08/12/20 20:25*	*1*
4-Bromofluorobenzene (Surr)	*75*		*47 - 134*		*08/12/20 20:25*	*1*
Dibromofluoromethane (Surr)	*121*		*78 - 129*		*08/12/20 20:25*	*1*
Toluene-d8 (Surr)	*85*		*69 - 122*		*08/12/20 20:25*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**0.76**	**J**	1.0	0.14	mg/L			08/06/20 18:52	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: GM - 23 /073120/

Date Collected: 07/31/20 14:35
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-10

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	2.5	U	2.5	0.60	ug/L			08/13/20 23:04	2.5
1,1-Dichloroethane	**9.9**		2.5	1.0	ug/L			08/13/20 23:04	2.5
1,1-Dichloroethene	2.5	U	2.5	1.2	ug/L			08/13/20 23:04	2.5
Benzene	2.5	U	2.5	0.96	ug/L			08/13/20 23:04	2.5
cis-1,2-Dichloroethene	**140**	D	40	15	ug/L			08/12/20 20:23	40
Ethylbenzene	2.5	U	2.5	0.98	ug/L			08/13/20 23:04	2.5
Tetrachloroethene	**3.3**		2.5	0.82	ug/L			08/13/20 23:04	2.5
Toluene	2.5	U	2.5	0.86	ug/L			08/13/20 23:04	2.5
trans-1,2-Dichloroethene	**11**		2.5	1.1	ug/L			08/13/20 23:04	2.5
Trichloroethene	**6.8**		2.5	0.90	ug/L			08/13/20 23:04	2.5
Vinyl chloride	**190**	D	40	20	ug/L			08/12/20 20:23	40
Xylenes, Total	5.0	U	5.0	1.1	ug/L			08/13/20 23:04	2.5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 130*		*08/12/20 20:23*	*40*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 130*		*08/13/20 23:04*	*2.5*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*		*08/12/20 20:23*	*40*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*		*08/13/20 23:04*	*2.5*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/12/20 20:23*	*40*
Dibromofluoromethane (Surr)	*86*		*78 - 129*		*08/13/20 23:04*	*2.5*
Toluene-d8 (Surr)	*93*		*69 - 122*		*08/12/20 20:23*	*40*
Toluene-d8 (Surr)	*90*		*69 - 122*		*08/13/20 23:04*	*2.5*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**6.6**		1.0	0.14	mg/L			08/06/20 19:26	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: DUP - 03 /073120/

Date Collected: 07/31/20 00:00
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-11

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 20:48	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 20:48	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 20:48	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 20:48	1
cis-1,2-Dichloroethene	**0.99**	**J**	1.0	0.38	ug/L			08/12/20 20:48	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 20:48	1
Tetrachloroethene	**0.85**	**J**	1.0	0.33	ug/L			08/12/20 20:48	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 20:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 20:48	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 20:48	1
Vinyl chloride	**0.50**	**J**	1.0	0.50	ug/L			08/12/20 20:48	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 20:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 130*		*08/12/20 20:48*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/12/20 20:48*	*1*
Dibromofluoromethane (Surr)	*97*		*78 - 129*		*08/12/20 20:48*	*1*
Toluene-d8 (Surr)	*93*		*69 - 122*		*08/12/20 20:48*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**3.0**		1.0	0.14	mg/L			08/06/20 19:58	1

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: EB - 09 /073120/
Date Collected: 07/31/20 15:25
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 21:13	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 21:13	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 21:13	1
Benzene	**0.38**	**J**	1.0	0.38	ug/L			08/12/20 21:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 21:13	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 21:13	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 21:13	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 21:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 21:13	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 21:13	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 21:13	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*75 - 130*		*08/12/20 21:13*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/12/20 21:13*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 129*		*08/12/20 21:13*	*1*
Toluene-d8 (Surr)	*93*		*69 - 122*		*08/12/20 21:13*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: EB - 10 /073120/
Date Collected: 07/31/20 16:10
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 21:38	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 21:38	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 21:38	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 21:38	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 21:38	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 21:38	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 21:38	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 21:38	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 21:38	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 21:38	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 21:38	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 130*		*08/12/20 21:38*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/12/20 21:38*	*1*
Dibromofluoromethane (Surr)	*90*		*78 - 129*		*08/12/20 21:38*	*1*
Toluene-d8 (Surr)	*93*		*69 - 122*		*08/12/20 21:38*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134309-1

Client Sample ID: TB - 04 /073120/
Date Collected: 07/31/20 00:00
Date Received: 08/01/20 09:50

Lab Sample ID: 240-134309-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 22:03	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 22:03	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 22:03	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 22:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 22:03	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 22:03	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 22:03	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 22:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 22:03	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 22:03	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 22:03	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 130*		*08/12/20 22:03*	*1*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*		*08/12/20 22:03*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/12/20 22:03*	*1*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/12/20 22:03*	*1*

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number

Client ID: AGM-D - Arcadis - Columbus, OH
SDG: 220080513
PM: RWe

Company: Arcadis	Billing Information: Arcadis Accounts Payable 630 Plaza Dr. # 100 Highlands Ranch, CO 80129
Address: 100 E Campus View Blvd Suite 200	
Report To: Carolyn Grogan	Email To: carolyn.grogan@arcadis.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: RACER Moraine/30042873.00048	State: OH / County/City: Moraine Time Zone Collected: [ ]PT [ ]MT [ ]CT [✓]ET
Phone: Email:	Site/Facility ID #: RACER Moraine Compliance Monitoring? [✓] Yes [ ] No
Collected By (print): D Gossett, H. Smith	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Standard Immediately Packed on Ice: [✓] Yes [ ] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [✓] No Analysis:

** Preservative Types: (1) nitric acid, (2) sul
(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other Trisodium Phospare

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: Light Hydrocarbons (LHC) (W)	Lab Profile/Line
GM-8/073120/	GW	G	7/31/20	0950				3	X	1
GM-6/073120/	GW	G	7/31/20	1120				3	X	2
GM-2/073120/	GW	G	7/31/20	1245				3	X	3
GM-32/073120/	GW	G	7/31/20	1420				3	X	4
GM-105/073120/	GW	G	7/31/20	1545				3	X	5
GM-28/073120/	GW	G	7/31/20	0930				3	X	6
GM-28R/073120/	GW	G	7/31/20	1115				3	X	7
GM-29/073120/	GW	G	7/31/20	1240				3	X	8
GM-27/073120/	GW	G	7/31/20	1350				3	X	9
~~DUP~~ GM-23/073120/	GW	G	7/31/20	1435				3	X	10

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips:	
Sample pH Acceptable	Y N NA
pH Strips:	
Sulfide Present	Y N NA
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2376479

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: E24
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments: 14.2°C

Relinquished by/Company: (Signature) H. Smith / Arcadis	Date/Time: 7/31/20 1740	Received by/Company: (Signature)	Date/Time:	MTJL LAB USE ONLY
Relinquished by/Company: (Signature) Fedex	Date/Time: 8/5/20 0942	Received by/Company: (Signature)	Date/Time: 8/5/20 0942	Table #: Acctnum: Template: Prelogin: PM: PB:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 1 of: 2

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Work

ALL SHAD

Client ID: AGM-D - Arcadis - Columbus, OH

SDG: 220080513

PM: RWe

Company: Arcadis	Billing Information: Arcadis Accounts Payable 630 Plaza Dr. # 100 Highlands Ranch, CO 80129
Address: 100 E. Campus View Blvd. Suite 200	
Report To: Carolyn Grogan	Email To: Carolyn.grogan@arcadis.com
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: 30042873.0004B RACER Moraine / 30042873.0004B	State: OH County/City: Moraine Time Zone Collected: [ ]PT [ ]MT [ ]CT [✓]ET
Phone: Email:	Site/Facility ID #: RACER Moraine Compliance Monitoring? [✓] Yes [ ] No
Collected By (print): D. Gossett, M. Smith	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: Standard Immediately Packed on Ice: [✓] Yes [ ] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) Field Filtered (if applicable): [ ] Yes [✓] No Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns
DUP-03/073120/	GW	G	7/31/20	-				3

Container Preservative T: 0

** Preservative Types: (1) nitric acid, (2) sul... (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other Trisodium Phosphate

Analyses: Light Hydrocarbons (14C) (W) — X

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips:	
Sample pH Acceptable	Y N NA
pH Strips:	
Sulfide Present	Y N NA
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments:

11

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: (Wet) Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2376480

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: E26
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments: 14.2°C

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
H. Smith / Arcadis	7/31/20 1815		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Fedex	8/5/20 0942		8/5/20 942
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: 2 of: 2

Sample Results

GM-8/073120/

Collect Date	07/31/2020 09:50	**LAB ID**	22008051301
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 12:25	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	**Ethane**	**54**	J	**0.075**	**1.0**	**ug/L**
74-85-1	Ethene	1.0 U	UJ	0.12	1.0	ug/L
74-82-8	**Methane**	**1900**	J	**2.5**	**5.0**	**ug/L**

GM-6/073120/

Collect Date	07/31/2020 11:20	**LAB ID**	22008051302
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 12:37	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	**Ethane**	**17**	J	**0.075**	**1.0**	**ug/L**
74-85-1	Ethene	1.0 U	UJ	0.12	1.0	ug/L
74-82-8	**Methane**	**490**	J	**2.5**	**5.0**	**ug/L**

GM-2/073120/

Collect Date	07/31/2020 12:45	**LAB ID**	22008051303
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 12:49	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	Ethane	1.0 U	UJ	0.075	1.0	ug/L
74-85-1	Ethene	1.0 U	UJ	0.12	1.0	ug/L
74-82-8	Methane	5.0 U	UJ	2.5	5.0	ug/L

Sample Results

GM-32/073120/

Collect Date	07/31/2020 14:20	**LAB ID**	22008051304
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 13:02	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	**Ethane**	**1.5**	J	**0.075**	**1.0**	**ug/L**
74-85-1	Ethene	1.0 U	UJ	0.12	1.0	ug/L
74-82-8	**Methane**	**420**	J	**2.5**	**5.0**	**ug/L**

GM-19S/073120/

Collect Date	07/31/2020 15:45	**LAB ID**	22008051305
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 13:14	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	Ethane	1.0 U	UJ	0.075	1.0	ug/L
74-85-1	**Ethene**	**0.13J**	J	**0.12**	**1.0**	**ug/L**
74-82-8	**Methane**	**130**	J	**2.5**	**5.0**	**ug/L**

GM-21/073120/

Collect Date	07/31/2020 09:30	**LAB ID**	22008051306
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	08/14/2020 13:26	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	**Ethane**	**4.5J**	J	**0.38**	**5.0**	**ug/L**
74-85-1	**Ethene**	**2.6J**	J	**0.58**	**5.0**	**ug/L**
74-82-8	**Methane**	**14000**	J	**12**	**25**	**ug/L**

Sample Results

GM-28R/073120/

Collect Date	07/31/2020 11:15	**LAB ID**	22008051307
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 13:39	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	**Ethane**	**0.23J**	J	**0.075**	**1.0**	**ug/L**
74-85-1	Ethene	1.0 U	UJ	0.12	1.0	ug/L
74-82-8	**Methane**	**110**	J	**2.5**	**5.0**	**ug/L**

GM-29/073120/

Collect Date	07/31/2020 12:40	**LAB ID**	22008051308
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 13:51	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	**Ethane**	**110**	J	**0.075**	**1.0**	**ug/L**
74-85-1	**Ethene**	**7.5**	J	**0.12**	**1.0**	**ug/L**
74-82-8	**Methane**	**5200**	J	**2.5**	**5.0**	**ug/L**

GM-27/073120/

Collect Date	07/31/2020 13:50	**LAB ID**	22008051309
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 14:04	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	Ethane	1.0 U	UJ	0.075	1.0	ug/L
74-85-1	Ethene	1.0 U	UJ	0.12	1.0	ug/L
74-82-8	Methane	5.0 U	UJ	2.5	5.0	ug/L

Sample Results

GM-23/073120/

Collect Date	07/31/2020 14:35	**LAB ID**	22008051310
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 14:17	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	Ethane	110	J	0.075	1.0	ug/L
74-85-1	Ethene	53	J	0.12	1.0	ug/L
74-82-8	Methane	4800	J	2.5	5.0	ug/L

DUP-03/073120/

Collect Date	07/31/2020 00:01	**LAB ID**	22008051311
Receive Date	08/05/2020 09:42	**Matrix**	Water

AM20GAX

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	08/14/2020 14:29	AWE	690108

CAS#	Parameter	Result		DL	LOQ	Units
74-84-0	Ethane	0.39J	J	0.075	1.0	ug/L
74-85-1	Ethene	5.2	J	0.12	1.0	ug/L
74-82-8	Methane	110	J	2.5	5.0	ug/L

ATTACHMENT E-4

Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020

Attachment E-4
Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
North Settling Lagoon Monitoring Wells													
HR-4	9/14/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U
	9/20/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/6/2001	0.17 J	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	0.88 J	< 1.0 U	< 0.50 U	1.0	< 1.0 U	< 1.0 U
	9/27/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.59 J	< 1.0 U	< 0.50 U	0.71 J	< 1.0 U	< 1.0 U
	9/18/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.55 J	< 1.0 U	< 0.50 U	0.71 J	< 1.0 U	< 1.0 U
	9/16/2004	< 1.0 U	0.77 J	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.3	< 1.0 U	< 0.50 U	0.50 J	< 1.0 U	< 1.0 U
	10/20/2005	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.39 J	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 2.0 U
	9/25/2006	< 1.0 U	1.6	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	0.41 J	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	< 2.0 U
	9/26/2007	< 1.0 U	3.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 2.0 U
	9/30/2008	< 1.0 U	4.1	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	0.31 J	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	5.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2010	< 1.0 U	3.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	4.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 2.0 U
	9/7/2012	0.23 J	5	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 2.0 U
	9/27/2013	0.29 J	3.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.21 J	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 2.0 U
	10/7/2014	0.71 J	2.0	< 1.0 U	< 1.0 U	0.26 J	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	< 1.0 UB	< 1.0 U	< 2.0 U
	10/30/2015	1.2	1.6	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	< 2.0 U
	8/19/2016	2	1.6	< 1.0 U	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 2.0 U
	8/16/2017	1.9	2.1	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	7/24/2018	1.6	1.6	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	0.16 J	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	< 2.0 U
	7/9/2019	2.2	1.7	0.19 J	< 1.0 U	0.56 J	< 1.0 U	0.22 J	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	< 2.0 U
	7/29/2020	1.9	1.3	< 1.0 U	< 1.0 U	0.42 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 2.0 U
W-2-N	9/14/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	11/6/2001	0.48 J	0.33 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.3	< 1.0 U	< 1.0 U
	9/19/2002	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.4	< 1.0 U	< 1.0 U
	9/18/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U
	9/16/2004	0.30 J	0.36 J	< 1.0 U	< 1.0 U	1.8	< 1.0 U	0.31 J	< 1.0 U	0.20 J	1.4	< 1.0 U	< 1.0 U
	10/20/2005	< 1.0 U	0.28 J	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	< 1.0 U	< 2.0 U
	9/22/2006	0.25 J	0.29 J	< 1.0 UJ	< 1.0 U	1.4 J	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	0.18 J	1 J	< 1.0 UJ	< 2.0 UJ
	9/25/2007	< 1.0 U	0.22 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 1.0 U	0.28 J	< 1.0 U	0.88 J	< 1.0 U	< 2.0 U
	9/29/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.47 J	< 1.0 U	< 2.0 U
	11/13/2009	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	< 1.0 U	< 2.0 U
	9/24/2010	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/6/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.20 J	< 1.0 U	< 2.0 U
	10/30/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.25 J	< 1.0 U	< 2.0 U
	8/15/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.6	< 1.0 U	< 2.0 U
	8/15/2017	0.28 J	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 2.0 U
	7/24/2018	0.38 J	0.31 J	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	< 1.0 U	0.28 J	1.9	< 1.0 U	< 2.0 U
	7/9/2019	< 1.0 U	0.19 J	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	0.22 J	1.1	< 1.0 U	< 2.0 U
	7/29/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.79 J	< 1.0 U	< 2.0 U

Attachment E-4
Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
W-3-N	9/17/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**291**	< 1.0 U	2.5	< 1.0 U	2.6	< 1.0 U	**13**	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**282**	< 1.0 U	< 1.0 U	< 1.0 U	3.9	< 1.0 U	**24**	< 1.0 U
	11/7/2001	< 5.6 U	< 5.6 U	< 5.6 U	< 5.6 U	**160**	< 5.6 U	**9.0**	< 5.6 U	2.2 J	2.1 J	**7.6**	< 5.6 U
	9/23/2002	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	**150**	< 6.7 U	< 6.7 U	< 6.7 U	< 3.3 U	< 6.7 U	**6.5 J**	< 6.7 U
	9/17/2003	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**100**	< 4.0 U	**5.1**	< 4.0 U	1.6 J	1.7 J	**6.6**	< 4.0 U
	9/16/2004	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**120**	< 4.0 U	0.94 J	< 4.0 U	1.6 J	< 4.0 U	**6.1**	< 4.0 U
	10/20/2005	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**84**	< 4.0 U	1.4 J	< 4.0 U	1.0 J	< 4.0 U	**8.0**	< 8.0 U
	9/25/2006	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**140**	< 5.0 U	< 5.0 U	< 5.0 U	1.9 J	< 5.0 U	**9.6**	< 1.0 U
	9/26/2007	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**110**	< 4.0 U	< 4.0 U	< 4.0 U	1.4 J	< 4.0 U	**5.6**	< 8.0 U
	9/29/2008	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**98**	< 3.3 U	< 3.3 U	< 3.3 U	1.4 J	< 3.3 U	**3.8**	< 6.7 U
	11/13/2009	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**72**	< 2.0 U	< 2.0 U	< 2.0 U	0.99 J	< 2.0 U	**3.2**	< 4.0 U
	9/24/2010	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	56	< 2.0 U	< 2.0 U	< 2.0 U	0.79 J	< 2.0 U	**2.4**	< 4.0 U
	9/28/2011	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	53	< 2.5 U	0.94 J	< 2.5 U	0.80 J	< 2.5 U	**2.7**	< 5.0 U
	9/6/2012	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	41	< 2.0 U	0.60 J	< 2.0 U	0.79 J	< 2.0 U	1.4 J	< 4.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	34	< 1.0 U	0.96 J	< 1.0 U	0.64 J	< 1.0 U	1.6	< 2.0 U
	10/7/2014	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	31	< 1.0 U	0.52 J	< 1.0 U	0.47 J	< 1.0 U	1.0	< 2.0 U
	11/4/2015	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	29	< 1.0 U	< 1.0 U	< 1.0 U	0.42 J	< 1.0 U	1.3	< 2.0 U
	8/19/2016	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	22	< 1.0 U	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	1.9	< 2.0 U
	8/15/2017	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	24	< 1.0 U	< 1.0 U	< 1.0 U	0.38 J	< 1.0 U	1.4	< 2.0 U
	7/24/2018	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	16	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 U	1.1	< 2.0 U
	7/9/2019	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	0.81 J	< 2.0 U
	7/29/2020	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	13	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.88 J	< 2.0 U
W-4-N	9/17/1999	< 1.0 U	1.3	< 1.0 U	< 1.0 U	2.2	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**9.8**	< 1.0 U	< 1.0 U
	9/19/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.3**	< 1.0 U	< 1.0 U
	11/7/2001	0.33 J	0.89 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	0.92 J	< 1.0 U	< 0.50 U	**7.1**	< 1.0 U	< 1.0 U
	9/24/2002	0.44 J	1.7	< 1.0 U	< 1.0 U	5.2	< 1.0 U	0.94 J	< 1.0 U	0.33 J	**8.5**	0.77 J	< 1.0 U
	9/17/2003	0.26 J	0.94 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	1.1	< 1.0 U	< 0.50 U	**8.1**	0.48 J	< 1.0 U
	9/16/2004	0.40 J	1.7	< 1.0 U	< 1.0 U	5.8	< 1.0 U	1.7	< 1.0 U	0.38 J	**12**	0.49 J	< 1.0 U
	10/20/2005	< 1.0 U	1.2	< 1.0 U	< 1.0 U	2.0	< 1.0 U	1.0	< 1.0 U	< 1.0 U	**7.2**	0.54 J	< 2.0 U
	9/25/2006	< 1.0 U	1.3	< 1.0 U	< 1.0 U	2.4	< 1.0 U	0.96 J	< 1.0 U	0.19 J	**7.6**	0.56 J	< 2.0 U
	9/26/2007	0.34 J	1.6	< 1.0 U	< 1.0 U	2.6	< 1.0 U	0.88 J	< 1.0 U	0.24 J	**10**	0.96 J	< 2.0 U
	9/29/2008	0.39 J	1.9	< 1.0 U	< 1.0 U	11	< 1.0 U	0.38 J	< 1.0 U	0.92 J	**8.4**	0.34 J	< 2.0 U
	11/13/2009	0.47 J	1.6	< 1.0 U	< 1.0 U	5.7	< 1.0 U	0.68 J	< 1.0 U	0.39 J	**15**	0.25 J	< 2.0 U
	9/24/2010	0.41 J	2.1	< 1.0 U	< 1.0 U	7.9	< 1.0 U	0.67 J	< 1.0 U	0.51 J	**13**	< 1.0 U	< 2.0 U
	9/28/2011	< 1.0 U	2.4	< 1.0 U	< 1.0 U	9.7	< 1.0 U	1.1	< 1.0 U	0.59 J	**9.9**	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	5.6	< 1.0 U	< 1.0 U	14	< 1.0 U	0.52 J	< 1.0 U	1.2	**6.3**	< 1.0 U	< 2.0 U
	9/27/2013	< 1.0 U	7.1	< 1.0 U	< 1.0 U	11	< 1.0 U	0.63 J	< 1.0 U	0.76 J	**7.4**	0.18 J	< 2.0 U
	10/7/2014	< 1.0 U	5.7	< 1.0 U	< 1.0 U	11	< 1.0 U	0.49 J	< 1.0 U	0.69 J	**9.2**	< 1.0 U	< 2.0 U
	11/4/2015	< 1.0 U	4.2	< 1.0 U	< 1.0 U	7.0	< 1.0 U	< 1.0 U	< 1.0 U	0.51 J	**12**	< 1.0 U	< 2.0 U
	8/19/2016	< 1.0 U	4.6	< 1.0 U	< 1.0 U	9.5	< 1.0 U	< 1.0 U	< 1.0 U	0.63 J	**10**	< 1.0 U	< 2.0 U
	8/16/2017	< 1.0 U	6.5	< 1.0 U	< 1.0 U	9.2	< 1.0 U	0.38 J	< 1.0 U	0.64 J	**8.8**	< 1.0 U	< 2.0 U
	7/24/2018	< 1.0 U	6.9	< 1.0 U	< 1.0 U	8.7	< 1.0 U	0.26 J	< 1.0 U	1.3	**6.1**	< 1.0 U	< 2.0 U
	7/9/2019	< 1.0 U	7.6	< 1.0 U	< 1.0 U	6.6	< 1.0 U	0.72 J	< 1.0 U	0.88 J	**9.2**	< 1.0 U	< 2.0 U
	7/29/2020	< 1.0 U	7.3	< 1.0 U	< 1.0 U	8.2	< 1.0 U	0.81 J	< 1.0 U	0.55 J	**6.9**	< 1.0 U	< 2.0 U

Attachment E-4
Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
South Settling Lagoon Monitoring Wells													
HR-17	9/23/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.2	< 1.0 U	**16**	< 1.0 U	< 1.0 U	**7.4**	< 1.0 U	< 1.0 U
	9/28/2000	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.7	< 1.0 U	< 1.0 U	4.4	< 1.0 U	< 1.0 U
	11/8/2001	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	3.3	< 1.0 U	< 0.50 U	4.2 B	< 1.0 U	< 1.0 U
	9/18/2002	0.39 J	1.5	< 1.0 U	< 1.0 U	5.1	< 1.0 U	**22**	< 1.0 U	1.4	**12**	< 1.0 U	< 1.0 U
	9/25/2003	< 2.0 U	0.75 J	< 2.0 U	< 2.0 U	2.2	< 2.0 U	**64**	< 2.0 U	0.7 J	**10**	< 2.0 U	< 2.0 U
	9/17/2004	< 5.0 U	2.0 J	< 5.0 U	< 5.0 U	7.1	< 5.0 U	**82**	< 5.0 U	1.6 J	**18**	< 5.0 U	< 5.0 U
	10/19/2005	< 1.0 U	0.70 J	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**45**	< 1.0 U	0.57 J	**8.3**	< 1.0 U	< 3.7 U
	9/18/2006	< 1.0 U	0.6 J	< 1.0 U	< 1.0 U	4.6	< 1.0 U	**34**	< 1.0 U	0.46 J	**5.6**	< 1.0 U	< 2.0 U
	9/25/2007	< 2.5 U	1.2 J	< 2.5 U	< 2.5 U	1.9 J	< 2.5 U	**51**	< 2.5 U	0.69 J	**16**	< 2.5 U	< 5.0 U
	9/26/2008	< 4.0 U	1.1 J	< 4.0 U	< 4.0 U	2.7 J	< 4.0 U	**120**	< 4.0 U	1.0 J	**31**	< 4.0 U	< 8.0 U
	11/12/2009	< 2.5 U	1.7 J	< 2.5 U	< 2.5 U	1.9 J	< 2.5 U	**85**	< 2.5 U	1.3 J	**21**	< 2.5 U	< 5.0 U
	9/23/2010	< 1.0 U	1.9	< 1.0 U	< 1.0 U	2.2	< 1.0 U	**60**	< 1.0 U	1.2 J	**18**	< 1.0 U	< 3.3 U
	9/29/2011	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	**110**	< 5.7 U	< 5.7 U	**57**	< 5.7 U	< 1.0 U
	9/6/2012	< 9.1 U	< 9.1 U	< 9.1 U	< 9.1 U	2.4 J	< 9.1 U	**140**	< 9.1 U	< 9.1 U	**75**	< 9.1 U	< 1.0 U
	9/25/2013	1.3	0.93 J	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**150**	< 1.0 U	0.92 J	**100**	< 1.0 U	< 2.0 U
	10/7/2014	< 5.0 U	2.0 J	< 5.0 U	< 5.0 U	2.2 J	< 5.0 U	**170**	< 5.0 U	< 5.0 U	**160**	< 5.0 U	< 1.0 U
	11/4/2015	1.5	0.61 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**150**	< 1.0 U	0.73 J	**160**	< 1.0 U	< 2.0 U
	8/25/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**170**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
	8/17/2017	0.80 J	0.60 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	**150**	< 1.0 U	< 1.0 U	**24**	< 1.0 U	< 2.0 U
	7/25/2018	4.8	2.2	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**180**	< 1.0 U	< 1.0 U	0.92 J	< 1.0 U	< 2.0 U
	7/9/2019	7.4	1.6	0.54 J	< 1.0 U	1.2	< 1.0 U	**150**	< 1.0 U	< 1.0 U	1.7	< 1.0 U	< 2.0 U
	7/29/2020	3.6	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**160**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
W-2-S	9/23/1999	1.9 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.1**	< 1.0 U	< 1.0 U
	9/27/2000	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5.0	< 1.0 U	< 1.0 U
	11/8/2001	1.7	0.58 J	< 1.0 U	< 1.0 U	0.49 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	**5.2 B**	< 1.0 U	< 1.0 U
	9/18/2002	1.5	0.98 J	< 1.0 U	< 1.0 U	0.90	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	4.9	< 1.0 U	< 1.0 U
	9/26/2003	1.4	0.99 J	< 1.0 U	< 1.0 U	0.74	< 1.0 U	< 1.0 U	0.25 J	< 0.50 U	**5.5**	< 1.0 U	< 1.0 U
	9/17/2004	1.5	1.3	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.55 J	< 1.0 U	< 0.50 U	**6.0**	< 1.0 U	< 1.0 U
	10/19/2005	1.6	1.2	< 1.0 U	< 1.0 U	0.78 J	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	**5.4**	< 1.0 U	< 2.0 U
	9/18/2006	1.8	1.2	< 1.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.1**	< 1.0 U	< 2.0 U
	9/24/2007	1.4	1.1	< 1.0 U	< 1.0 U	0.89 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.3**	< 1.0 U	< 2.0 U
	9/25/2008	1.4	0.92 J	< 1.0 U	< 1.0 U	0.78 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.2**	< 1.0 U	< 2.0 U
	11/12/2009	1.7	1.2	< 1.0 U	0.43 J	0.90 J	< 1.0 UJ	0.35 J	< 1.0 U	< 1.0 U	**6.6**	< 1.0 U	< 2.0 U
	9/24/2010	1.4	1.1	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	0.33 J	< 1.0 U	< 1.0 U	**5.9**	< 1.0 U	< 2.0 U
	9/29/2011	1.6	1.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	**7.1**	< 1.0 U	< 2.0 U
	9/6/2012	1.6	1.1	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.35 J	< 1.0 U	< 1.0 U	**6.1**	< 1.0 U	< 2.0 U
	9/25/2013	1.8	0.86 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.31 J	< 1.0 U	< 1.0 U	**6.4**	< 1.0 U	< 2.0 U
	10/7/2014	0.79 J	0.80 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	0.33 J	< 1.0 U	0.34 J	5.0	< 1.0 U	< 2.0 U
	11/5/2015	< 1.0 U	0.63 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	0.36 J	< 1.0 U	0.47 J	**23**	< 1.0 U	< 2.0 U
	8/23/2016	1.4	1.0	< 1.0 U	< 1.0 U	1.9	< 1.0 U	0.34 J	< 1.0 U	0.30 J	**6.6**	< 1.0 U	< 2.0 U
	8/16/2017	1.3	1.1	< 1.0 U	< 1.0 U	2.4	< 1.0 U	< 1.0 U	< 1.0 U	0.40 J	**5.9**	< 1.0 U	< 2.0 U
	7/25/2018	0.98 J	0.83 J	< 1.0 U	< 1.0 U	2.2	< 1.0 U	2.0	< 1.0 U	0.32 J	4.6	< 1.0 U	< 2.0 U
	7/9/2019	0.60 J	0.23 J	< 1.0 U	< 1.0 U	0.29 J	< 1.0 U	**20**	< 1.0 U	< 1.0 U	2.8	< 1.0 U	< 2.0 U
	7/29/2020	0.85 J	0.60 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**6.3**	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 2.0 U

Attachment E-4
Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
W-3-S	9/23/1999	3.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	2.6	< 1.0 U	< 1.0 U
	9/28/2000	2.8	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 1.0 U
	11/8/2001	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.44 J	< 1.0 U	< 0.50 U	1.5 B	< 1.0 U	< 1.0 U
	9/18/2002	2.1	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	0.61 J	< 1.0 U	< 0.50 U	2.4	< 1.0 U	< 1.0 U
	9/26/2003	1.8	< 1.0 U	< 1.0 U	< 1.0 U	0.34 J	< 1.0 U	0.81 J	< 1.0 U	< 0.50 U	2.0	< 1.0 U	< 1.0 U
	9/17/2004	2.4	0.21 J	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.2	< 1.0 U	< 0.50 U	2.9	< 1.0 U	< 1.0 U
	10/19/2005	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 2.0 U
	9/18/2006	2.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.60 J	< 1.0 U	< 1.0 U	3.4	< 1.0 U	< 2.0 U
	9/24/2007	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
	9/26/2008	1.2	0.21 J	< 1.0 U	< 1.0 U	0.52 J	< 1.0 U	1.3	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 2.0 U
	11/12/2009	1.2	< 1.0 U	< 1.0 U	< 1.0 U	0.33 J	< 1.0 UJ	0.87 J	< 1.0 U	< 1.0 U	2.5	< 1.0 U	< 2.0 U
	9/23/2010	0.87 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.95 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	< 2.0 U
	9/29/2011	0.51 J	0.38 J	< 1.0 U	< 1.0 U	0.72 J	< 1.0 U	2.8	< 1.0 U	0.19 J	2.6	< 1.0 U	< 2.0 U
	9/6/2012	0.60 J	0.89 J	< 1.0 U	< 1.0 U	1.0	< 1.0 U	4.4	< 1.0 U	0.49 J	**5.7**	< 1.0 U	< 2.0 U
	9/25/2013	0.49 J	1.2	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**25**	< 1.0 U	0.59 J	**21**	< 1.0 U	< 2.0 U
	10/7/2014	0.76 J	0.96 J	< 1.0 U	< 1.0 U	2.3	< 1.0 U	**38**	< 1.0 U	0.59 J	**35**	< 1.0 U	< 2.0 U
	11/4/2015	< 1.0 U	0.41 J	< 1.0 U	< 1.0 U	2.6	< 1.0 U	**65**	< 1.0 U	0.31 J	**97**	< 1.0 U	< 2.0 U
	8/23/2016	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	2.1	< 2.0 U	**62**	< 2.0 U	< 2.0 U	**11**	< 2.0 U	< 4.0 U
	8/16/2017	0.62 J	0.66 J	< 1.0 U	< 1.0 U	1.6	< 1.0 U	**68**	< 1.0 U	< 1.0 U	**7.6**	< 1.0 U	< 2.0 U
	7/25/2018	0.87 J	0.61 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**19**	< 1.0 U	0.19 J	**27**	< 1.0 U	< 2.0 U
	7/9/2019	2.5	0.83 J	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**81**	< 1.0 U	< 1.0 U	**5.6**	< 1.0 U	< 2.0 U
	7/29/2020	1.6	0.48 J	< 1.0 U	< 1.0 U	1.9	< 1.0 U	**110**	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 2.0 U
W-4-S	9/23/1999	3.3	1.2	< 1.0 U	< 1.0 U	4.4	< 1.0 U	**31 J**	< 1.0 U	< 1.0 U	**15 J**	< 1.0 U	< 1.0 U
	9/28/2000	3.0	1.0	< 1.0 U	< 1.0 U	4.0	< 1.0 U	**15**	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 1.0 U
	11/8/2001	2.9	1.1	< 1.0 U	< 1.0 U	3.3	< 1.0 U	**13**	< 1.0 U	0.43 J	**8.9 B**	< 1.0 U	< 1.0 U
	9/18/2002	2.3	0.87 J	< 1.0 U	< 1.0 U	3.6	< 1.0 U	**17**	< 1.0 U	0.60	**9.8**	< 1.0 U	< 1.0 U
	9/26/2003	2.0	0.92 J	< 1.0 U	< 1.0 U	3.6	< 1.0 U	**24**	0.25 J	0.78	**13**	< 1.0 U	< 1.0 U
	9/17/2004	2.3	1.2	< 1.0 U	< 1.0 U	4.4	< 1.0 U	**18**	< 1.0 U	0.97	**13**	< 1.0 U	< 1.0 U
	10/19/2005	2.4	1.4	< 1.0 U	< 1.0 U	4.3	< 1.0 U	**20**	< 1.0 U	1.1	**13**	< 1.0 U	< 2.0 U
	9/19/2006	1.7	1.3	< 1.0 U	< 1.0 U	4.3	< 1.0 U	**18**	< 1.0 U	1.0	**12**	< 1.0 U	< 2.0 U
	9/24/2007	1.5	1.8	< 1.0 U	< 1.0 U	5.9	< 1.0 U	**26**	< 1.0 U	1.3	**16**	< 1.0 U	< 2.0 U
	9/26/2008	0.95 J	1.3	0.21 J	< 1.0 U	6	< 1.0 U	**32**	< 1.0 U	1.2	**16**	< 1.0 U	< 2.0 U
	11/12/2009	1.3	1.6	< 1.0 U	< 1.0 U	9.1	< 1.0 U	**39**	< 1.0 U	1.5	**23**	< 1.0 U	< 2.0 U
	9/23/2010	1.1	1.6	< 1.0 U	< 1.0 U	9.1	< 1.0 U	**31**	< 1.0 U	1.5	**20**	< 1.0 U	< 2.0 U
	9/29/2011	1.1	1.5	< 1.0 U	< 1.0 U	8.9	< 1.0 U	**31**	< 1.0 U	1.4	**21**	< 1.0 U	< 2.0 U
	9/6/2012	1.0 J	1.6 J	< 1.0 U	< 1.0 U	9.4	< 1.0 U	**26**	< 1.0 U	1.4 J	**21**	< 1.0 U	< 3.3 U
	9/25/2013	1.6	1.9	< 1.0 U	< 1.0 U	6.3	< 1.0 U	**60**	< 1.0 U	1.2	**50**	< 1.0 U	< 2.0 U
	10/7/2014	1.4 J	1.3 J	< 2.5 U	< 2.5 U	6.1	< 2.5 U	**65**	< 2.5 U	1.1 J	**63**	< 2.5 U	< 5.0 U
	11/4/2015	1.9 J	2.3	< 2.0 U	< 2.0 U	9.7	< 2.0 U	**74**	< 2.0 U	1.4 J	**72**	< 2.0 U	< 4.0 U
	8/23/2016	1.6 J	1.7 J	< 2.0 U	< 2.0 U	12	< 2.0 U	**54**	< 2.0 U	1.1 J	**45**	< 2.0 U	< 4.0 U
	8/16/2017	1.5	2.7	< 1.0 U	< 1.0 U	22	< 1.0 U	**39**	< 1.0 U	2.1	**40**	< 1.0 U	< 2.0 U
	7/25/2018	1.8	2.1	< 1.0 U	< 1.0 U	17	< 1.0 U	**68**	< 1.0 U	1.5	**42**	< 1.0 U	< 2.0 U
	7/9/2019	1.7	1.6	< 1.0 U	< 1.0 U	13	< 1.0 U	**70**	< 1.0 U	1.2	**33**	< 1.0 U	< 2.0 U
	7/29/2020	0.71 J	< 2.0 U	< 2.0 U	< 2.0 U	1.0 J	< 2.0 U	**37**	< 2.0 U	< 2.0 U	**9.1**	< 2.0 U	< 4.0 U

Attachment E-4
Groundwater VOC Analytical Results for North and South Settling Lagoon Wells from 1999 to 2020
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
HR-1	9/16/1999	1.6	2.4	< 1.0 U	< 1.0 U	5.8	< 1.0 U	**44**	< 1.0 U	3.9	**56**	< 1.0 U	< 1.0 U
	9/25/2000	1.3	2.4	< 1.0 U	< 1.0 U	8.5	< 1.0 U	**33**	< 1.0 U	3.2	**56**	< 1.0 U	< 1.0 U
	11/8/2001	2.2 J	2.8 J	< 3.3 U	< 3.3 U	9.9	< 3.3 U	**36**	< 3.3 U	2.8	**86 B**	< 3.3 U	< 3.3 U
	9/23/2002	< 2.0 U	2.8	< 2.0 U	< 2.0 U	4.5	< 2.0 U	**33**	< 2.0 U	3.2	**33**	< 2.0 U	< 2.0 U
	9/18/2003	1 J	2.6	< 2.0 U	< 2.0 U	2.3	< 2.0 U	**27**	< 2.0 U	3.2	**56**	< 2.0 U	< 2.0 U
	9/13/2004	0.56 J	2.5	< 1.0 U	< 1.0 U	24	< 1.0 U	**23**	< 1.0 U	2.3	**30**	0.55 J	< 1.0 U
	10/18/2005	1.2	2.7	< 1.0 U	< 1.0 U	19	< 1.0 U	**28**	< 1.0 U	2.3	**43**	1.1	< 2.0 U
	9/25/2006	0.57 J	1.7	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	1.4 J	**50**	< 1.0 U	< 3.3 U
	9/24/2007	0.45 J	2.2	0.21J	< 1.0 U	9.5	< 1.0 U	**20**	< 1.0 U	1.9	**40**	< 1.0 U	< 2.0 U
	9/29/2008	0.77 J	1.8 J	< 2.5 U	< 2.5 U	5	< 2.5 U	**27**	< 2.5 U	2 J	**70**	< 2.5 U	< 5.0 U
	9/26/2013	0.99 J	1.2	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**30**	< 1.0 U	0.90 J	**100**	< 1.0 U	< 2.0 U
	10/8/2014	1.3 J	1.4 J	< 5.0 U	< 5.0 U	20	< 5.0 U	**36**	< 5.0 U	1.5 J	**120**	< 5.0 U	< 1.0 U
	11/5/2015	1.2	0.51 J	< 1.0 U	< 1.0 U	6.6	< 1.0 U	**76**	< 1.0 U	0.43 J	**210**	< 1.0 U	< 2.0 U
	8/23/2016	1.1 J	< 2.0 U	< 2.0 U	< 2.0 U	3.3	< 2.0 U	**63**	< 2.0 U	< 2.0 U	**190**	< 2.0 U	< 4.0 U
	8/17/2017	1.0	0.39 J	< 1.0 U	< 1.0 U	0.32 J	< 1.0 U	**56**	< 1.0 U	< 1.0 U	0.65 J	< 1.0 U	< 2.0 U
	7/25/2018	0.77 J	0.96 J	< 1.0 U	< 1.0 U	20	< 1.0 U	**99**	< 1.0 U	1.3	**40**	< 1.0 U	< 2.0 U
	7/29/2020	< 10 U	< 10 U	< 10 U	< 10 U	20	< 10 U	**120**	< 10 U	< 10 U	**25**	< 10 U	< 20 U

ug/L - Micrograms per Liter.
< - Constituent not detected above laboratory reporting limit shown.
BOLD - Result above MCL.
J - Value is estimated.
B - Compound was found in the blank and sample.
U - Constituent not detected above laboratory reporting limit shown.
UB - Analyte considered non-detect at listed value due to associated blank contamination.
K - The compound was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased high.

1,1,1-TCA - 1,1,1-Trichloroethane.
1,1-DCA - 1,1-Dichloroethane.
1,1-DCE - 1,1-Dichloroethene.
cis-1,2-DCE - cis-1,1-Dichloroethene.
PCE - Tetrachloroethene.
trans-1,2-DCE - trans-1,2-Dichloroethene.
TCE - Trichloroethene.

ATTACHMENT E-5

Laboratory Analytical Reports

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134167-1
Client Project/Site: Racer Moraine Annual

For:
ARCADIS U.S., Inc.
100 E. Campus View Blvd
Suite 200
Columbus, Ohio 43235

Attn: Carolyn Grogan

Authorized for release by:
8/13/2020 2:27:58 PM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Job ID: 240-134167-1
Project/Site: Racer Moraine Annual

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 240-134167-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Moraine Annual

Report Number: 240-134167-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/30/2020 8:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.2º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples HR-4/072920/ (240-134167-1), W-2-N/072920/ (240-134167-2), W-3-N/072920/ (240-134167-3), W-4-N/072920/ (240-134167-4) and DUP-02/072920/ (240-134167-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/11/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134167-1
Project/Site: Racer Moraine Annual

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134167-1	HR-4/072920/	Water	07/29/20 09:30	07/30/20 08:00	
240-134167-2	W-2-N/072920/	Water	07/29/20 10:50	07/30/20 08:00	
240-134167-3	W-3-N/072920/	Water	07/29/20 12:20	07/30/20 08:00	
240-134167-4	W-4-N/072920/	Water	07/29/20 13:30	07/30/20 08:00	
240-134167-5	DUP-02/072920/	Water	07/29/20 00:00	07/30/20 08:00	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: HR-4/072920/ — Lab Sample ID: 240-134167-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.9		1.0	0.24	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	1.3		1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.42	J	1.0	0.38	ug/L	1		8260B	Total/NA
Trichloroethene	0.36	J	1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: W-2-N/072920/ — Lab Sample ID: 240-134167-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	1.8		1.0	0.38	ug/L	1		8260B	Total/NA
Trichloroethene	0.79	J	1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: W-3-N/072920/ — Lab Sample ID: 240-134167-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	13		1.0	0.38	ug/L	1		8260B	Total/NA
Vinyl chloride	0.88	J	1.0	0.50	ug/L	1		8260B	Total/NA

Client Sample ID: W-4-N/072920/ — Lab Sample ID: 240-134167-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	7.3		1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	8.2		1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.81	J	1.0	0.33	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.55	J	1.0	0.43	ug/L	1		8260B	Total/NA
Trichloroethene	6.9		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: DUP-02/072920/ — Lab Sample ID: 240-134167-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.9		1.0	0.24	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	1.3		1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.52	J	1.0	0.38	ug/L	1		8260B	Total/NA
Trichloroethene	0.36	J	1.0	0.36	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: HR-4/072920/
Date Collected: 07/29/20 09:30
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.9**		1.0	0.24	ug/L			08/11/20 03:40	1
1,1-Dichloroethane	**1.3**		1.0	0.41	ug/L			08/11/20 03:40	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 03:40	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 03:40	1
cis-1,2-Dichloroethene	**0.42**	**J**	1.0	0.38	ug/L			08/11/20 03:40	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 03:40	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 03:40	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 03:40	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 03:40	1
Trichloroethene	**0.36**	**J**	1.0	0.36	ug/L			08/11/20 03:40	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 03:40	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 03:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/11/20 03:40*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 03:40*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 03:40*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 03:40*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: W-2-N/072920/
Date Collected: 07/29/20 10:50
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 04:45	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 04:45	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 04:45	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 04:45	1
cis-1,2-Dichloroethene	**1.8**		1.0	0.38	ug/L			08/11/20 04:45	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 04:45	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 04:45	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 04:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 04:45	1
Trichloroethene	**0.79**	**J**	1.0	0.36	ug/L			08/11/20 04:45	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 04:45	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 04:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 130*		*08/11/20 04:45*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 04:45*	*1*
Dibromofluoromethane (Surr)	*87*		*78 - 129*		*08/11/20 04:45*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 04:45*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: W-3-N/072920/
Date Collected: 07/29/20 12:20
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 05:07	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 05:07	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 05:07	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 05:07	1
cis-1,2-Dichloroethene	**13**		1.0	0.38	ug/L			08/11/20 05:07	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 05:07	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 05:07	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 05:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 05:07	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 05:07	1
Vinyl chloride	**0.88**	**J**	1.0	0.50	ug/L			08/11/20 05:07	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 05:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*		*08/11/20 05:07*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 05:07*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/11/20 05:07*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 05:07*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: W-4-N/072920/
Date Collected: 07/29/20 13:30
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 05:29	1
1,1-Dichloroethane	**7.3**		1.0	0.41	ug/L			08/11/20 05:29	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 05:29	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 05:29	1
cis-1,2-Dichloroethene	**8.2**		1.0	0.38	ug/L			08/11/20 05:29	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 05:29	1
Tetrachloroethene	**0.81**	**J**	1.0	0.33	ug/L			08/11/20 05:29	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 05:29	1
trans-1,2-Dichloroethene	**0.55**	**J**	1.0	0.43	ug/L			08/11/20 05:29	1
Trichloroethene	**6.9**		1.0	0.36	ug/L			08/11/20 05:29	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 05:29	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 05:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 130*		*08/11/20 05:29*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 05:29*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/11/20 05:29*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 05:29*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Client Sample ID: DUP-02/072920/
Date Collected: 07/29/20 00:00
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134167-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.9**		1.0	0.24	ug/L			08/11/20 05:51	1
1,1-Dichloroethane	**1.3**		1.0	0.41	ug/L			08/11/20 05:51	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 05:51	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 05:51	1
cis-1,2-Dichloroethene	**0.52**	**J**	1.0	0.38	ug/L			08/11/20 05:51	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 05:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 05:51	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 05:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 05:51	1
Trichloroethene	**0.36**	**J**	1.0	0.36	ug/L			08/11/20 05:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 05:51	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 05:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 05:51*	*1*
4-Bromofluorobenzene (Surr)	*76*		*47 - 134*		*08/11/20 05:51*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/11/20 05:51*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 05:51*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-130)	(47-134)	(78-129)	(69-122)
240-134167-1	HR-4/072920/	106	79	92	95
240-134167-1 MS	HR-4/072920/	99	92	90	100
240-134167-1 MSD	HR-4/072920/	97	93	91	98
240-134167-2	W-2-N/072920/	102	79	87	96
240-134167-3	W-3-N/072920/	104	77	93	97
240-134167-4	W-4-N/072920/	105	79	93	98
240-134167-5	DUP-02/072920/	108	76	91	95
LCS 240-446441/4	Lab Control Sample	98	96	89	102
MB 240-446441/7	Method Blank	106	81	91	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-446441/7
Matrix: Water
Analysis Batch: 446441

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 00:46	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 00:46	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 00:46	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 00:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 00:46	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 00:46	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 00:46	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 00:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 00:46	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 00:46	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 00:46	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 00:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/11/20 00:46*	*1*
4-Bromofluorobenzene (Surr)	*81*		*47 - 134*		*08/11/20 00:46*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/11/20 00:46*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 00:46*	*1*

Lab Sample ID: LCS 240-446441/4
Matrix: Water
Analysis Batch: 446441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	8.72		ug/L		87	65 - 141
1,1-Dichloroethane	10.0	9.79		ug/L		98	74 - 126
1,1-Dichloroethene	10.0	9.65		ug/L		97	73 - 129
Benzene	10.0	10.5		ug/L		105	77 - 123
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	75 - 124
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120
m-Xylene & p-Xylene	10.0	10.0		ug/L		100	79 - 121
o-Xylene	10.0	9.97		ug/L		100	75 - 123
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
Toluene	10.0	10.6		ug/L		106	79 - 122
trans-1,2-Dichloroethene	10.0	9.53		ug/L		95	74 - 130
Trichloroethene	10.0	9.12		ug/L		91	71 - 121
Vinyl chloride	10.0	10.2		ug/L		102	61 - 134
Xylenes, Total	20.0	20.0		ug/L		100	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*
Dibromofluoromethane (Surr)	*89*		*78 - 129*
Toluene-d8 (Surr)	*102*		*69 - 122*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134167-1 MS
Matrix: Water
Analysis Batch: 446441

Client Sample ID: HR-4/072920/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	1.9		10.0	9.19		ug/L		73	62 - 135
1,1-Dichloroethane	1.3		10.0	9.76		ug/L		85	71 - 121
1,1-Dichloroethene	1.0	U	10.0	9.06		ug/L		91	64 - 132
Benzene	1.0	U	10.0	9.05		ug/L		90	70 - 121
cis-1,2-Dichloroethene	0.42	J	10.0	9.12		ug/L		87	68 - 121
Ethylbenzene	1.0	U	10.0	8.56		ug/L		86	66 - 122
m-Xylene & p-Xylene	2.0	U	10.0	8.57		ug/L		86	65 - 123
o-Xylene	1.0	U	10.0	8.38		ug/L		84	63 - 124
Tetrachloroethene	1.0	U	10.0	8.38		ug/L		84	52 - 129
Toluene	1.0	U	10.0	9.15		ug/L		91	68 - 124
trans-1,2-Dichloroethene	1.0	U	10.0	8.38		ug/L		84	69 - 126
Trichloroethene	0.36	J	10.0	8.06		ug/L		77	56 - 124
Vinyl chloride	1.0	U	10.0	9.76		ug/L		98	49 - 136
Xylenes, Total	2.0	U	20.0	17.0		ug/L		85	64 - 124

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*
4-Bromofluorobenzene (Surr)	*92*		*47 - 134*
Dibromofluoromethane (Surr)	*90*		*78 - 129*
Toluene-d8 (Surr)	*100*		*69 - 122*

Lab Sample ID: 240-134167-1 MSD
Matrix: Water
Analysis Batch: 446441

Client Sample ID: HR-4/072920/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	1.9		10.0	9.77		ug/L		79	62 - 135	6	35
1,1-Dichloroethane	1.3		10.0	9.79		ug/L		85	71 - 121	0	35
1,1-Dichloroethene	1.0	U	10.0	8.43		ug/L		84	64 - 132	7	35
Benzene	1.0	U	10.0	9.09		ug/L		91	70 - 121	0	35
cis-1,2-Dichloroethene	0.42	J	10.0	9.14		ug/L		87	68 - 121	0	35
Ethylbenzene	1.0	U	10.0	8.76		ug/L		88	66 - 122	2	35
m-Xylene & p-Xylene	2.0	U	10.0	8.74		ug/L		87	65 - 123	2	35
o-Xylene	1.0	U	10.0	8.59		ug/L		86	63 - 124	2	35
Tetrachloroethene	1.0	U	10.0	9.03		ug/L		90	52 - 129	8	35
Toluene	1.0	U	10.0	9.20		ug/L		92	68 - 124	1	35
trans-1,2-Dichloroethene	1.0	U	10.0	8.46		ug/L		85	69 - 126	1	35
Trichloroethene	0.36	J	10.0	8.28		ug/L		79	56 - 124	3	35
Vinyl chloride	1.0	U	10.0	9.72		ug/L		97	49 - 136	0	35
Xylenes, Total	2.0	U	20.0	17.3		ug/L		87	64 - 124	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*
4-Bromofluorobenzene (Surr)	*93*		*47 - 134*
Dibromofluoromethane (Surr)	*91*		*78 - 129*
Toluene-d8 (Surr)	*98*		*69 - 122*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134167-1

GC/MS VOA

Analysis Batch: 446441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134167-1	HR-4/072920/	Total/NA	Water	8260B	
240-134167-2	W-2-N/072920/	Total/NA	Water	8260B	
240-134167-3	W-3-N/072920/	Total/NA	Water	8260B	
240-134167-4	W-4-N/072920/	Total/NA	Water	8260B	
240-134167-5	DUP-02/072920/	Total/NA	Water	8260B	
MB 240-446441/7	Method Blank	Total/NA	Water	8260B	
LCS 240-446441/4	Lab Control Sample	Total/NA	Water	8260B	
240-134167-1 MS	HR-4/072920/	Total/NA	Water	8260B	
240-134167-1 MSD	HR-4/072920/	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 240-134167-1
Project/Site: Racer Moraine Annual

Client Sample ID: HR-4/072920/
Lab Sample ID: 240-134167-1
Date Collected: 07/29/20 09:30
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 03:40	LEE	TAL CAN

Client Sample ID: W-2-N/072920/
Lab Sample ID: 240-134167-2
Date Collected: 07/29/20 10:50
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 04:45	LEE	TAL CAN

Client Sample ID: W-3-N/072920/
Lab Sample ID: 240-134167-3
Date Collected: 07/29/20 12:20
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 05:07	LEE	TAL CAN

Client Sample ID: W-4-N/072920/
Lab Sample ID: 240-134167-4
Date Collected: 07/29/20 13:30
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 05:29	LEE	TAL CAN

Client Sample ID: DUP-02/072920/
Lab Sample ID: 240-134167-5
Date Collected: 07/29/20 00:00
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 05:51	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134167-1
Project/Site: Racer Moraine Annual

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

0.3 | 1.2

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Derrick Gossett	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.5
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 1 ~~Page 5 of 9~~ 176
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:

Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:	
City: Columbus	TAT Requested (days): Standard	
State, Zip: OH, 43235		
Phone:	PO #: 30042873.0004B	
Email: carolyn.grogan@arcadis.com	WO #:	
Project Name: Racer Moraine Annual	Project #: 24006917	
Site: RACER Moraine	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
HR-4/072920/	7/29/20	0930	G	Water	N	Y	X		9	MS/MSD
W-2-N/072920/	7/29/20	1050	G	Water	N	N	X		3	
W-3-N/072920/	7/29/20	1220	G	Water	N	N	X		3	
W-4-N/072920/	7/29/20	1330	G	Water	N	N	X		3	
DUP-02/072920/	7/29/20	—	G	Water	N	N	X		3	
				Water						

210
Dayton

240-134167 Chain of Custody

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	7/29/20 1615	Arcadis		7-29-2020 1615	ETA
Relinquished by:			Received by:		
Relinquished by:	7-29-2020 1630	ETA	Received by:	7-30-20 800	ETAC

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 134167
Canton Facility

Client Arcadis Site Name

Cooler Received on 7-30-20 Opened on 7-30-20

Cooler unpacked by:

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 0.3 °C Corrected Cooler Temp. 1.2 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134169-1
Client Project/Site: Racer Moraine Annual
Revision: 1

For:
ARCADIS U.S., Inc.
100 E. Campus View Blvd
Suite 200
Columbus, Ohio 43235

Attn: Carolyn Grogan

Authorized for release by:
8/18/2020 9:50:43 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Job ID: 240-134169-1
Project/Site: Racer Moraine Annual

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 240-134169-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Moraine Annual

Report Number: 240-134169-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/30/2020 8:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples HR-17/072920/ (240-134169-1), W-2-S/072920/ (240-134169-2), W-3-S/072920/ (240-134169-3), W-4-S/072920/ (240-134169-4) and HR-1/072920/ (240-134169-5) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/11/2020 and 08/12/2020.

Samples HR-17/072920/ (240-134169-1)[10X], HR-17/072920/ (240-134169-1)[2X], W-3-S/072920/ (240-134169-3)[5X], W-4-S/072920/ (240-134169-4)[2X] and HR-1/072920/ (240-134169-5)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No MS/MSD in batch 446554 due to and incorrect dilution: HR-17/072920/ (240-134169-1), W-2-S/072920/ (240-134169-2), W-3-S/072920/ (240-134169-3) and W-4-S/072920/ (240-134169-4).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134169-1
Project/Site: Racer Moraine Annual

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134169-1
Project/Site: Racer Moraine Annual

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134169-1	HR-17/072920/	Water	07/29/20 09:55	07/30/20 08:00	
240-134169-2	W-2-S/072920/	Water	07/29/20 11:15	07/30/20 08:00	
240-134169-3	W-3-S/072920/	Water	07/29/20 12:15	07/30/20 08:00	
240-134169-4	W-4-S/072920/	Water	07/29/20 13:25	07/30/20 08:00	
240-134169-5	HR-1/072920/	Water	07/29/20 15:10	07/30/20 08:00	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: HR-17/072920/ — Lab Sample ID: 240-134169-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	3.6		2.0	0.48	ug/L	2		8260B	Total/NA
Tetrachloroethene	160		10	3.3	ug/L	10		8260B	Total/NA

Client Sample ID: W-2-S/072920/ — Lab Sample ID: 240-134169-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.85	J	1.0	0.24	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.60	J	1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.7		1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	6.3		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	3.6		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: W-3-S/072920/ — Lab Sample ID: 240-134169-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.6		1.0	0.24	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.48	J	1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.9		1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	110		5.0	1.6	ug/L	5		8260B	Total/NA
Trichloroethene	2.0		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: W-4-S/072920/ — Lab Sample ID: 240-134169-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.71	J	2.0	0.48	ug/L	2		8260B	Total/NA
cis-1,2-Dichloroethene	1.0	J	2.0	0.76	ug/L	2		8260B	Total/NA
Tetrachloroethene	37		2.0	0.65	ug/L	2		8260B	Total/NA
Trichloroethene	9.1		2.0	0.72	ug/L	2		8260B	Total/NA

Client Sample ID: HR-1/072920/ — Lab Sample ID: 240-134169-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	20		10	3.8	ug/L	10		8260B	Total/NA
Tetrachloroethene	120		10	3.3	ug/L	10		8260B	Total/NA
Trichloroethene	25		10	3.6	ug/L	10		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: HR-17/072920/
Date Collected: 07/29/20 09:55
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**3.6**		2.0	0.48	ug/L			08/11/20 21:56	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/11/20 21:56	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/11/20 21:56	2
Benzene	2.0	U	2.0	0.77	ug/L			08/11/20 21:56	2
cis-1,2-Dichloroethene	2.0	U	2.0	0.76	ug/L			08/11/20 21:56	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/11/20 21:56	2
Tetrachloroethene	**160**		10	3.3	ug/L			08/11/20 13:56	10
Toluene	2.0	U	2.0	0.69	ug/L			08/11/20 21:56	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/11/20 21:56	2
Trichloroethene	2.0	U	2.0	0.72	ug/L			08/11/20 21:56	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/11/20 21:56	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/11/20 21:56	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 13:56*	*10*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/11/20 21:56*	*2*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/11/20 13:56*	*10*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 21:56*	*2*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 13:56*	*10*
Dibromofluoromethane (Surr)	*95*		*78 - 129*		*08/11/20 21:56*	*2*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 13:56*	*10*
Toluene-d8 (Surr)	*91*		*69 - 122*		*08/11/20 21:56*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: W-2-S/072920/
Date Collected: 07/29/20 11:15
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.85**	**J**	1.0	0.24	ug/L			08/11/20 14:17	1
1,1-Dichloroethane	**0.60**	**J**	1.0	0.41	ug/L			08/11/20 14:17	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 14:17	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 14:17	1
cis-1,2-Dichloroethene	**1.7**		1.0	0.38	ug/L			08/11/20 14:17	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 14:17	1
Tetrachloroethene	**6.3**		1.0	0.33	ug/L			08/11/20 14:17	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 14:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 14:17	1
Trichloroethene	**3.6**		1.0	0.36	ug/L			08/11/20 14:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 14:17	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 14:17*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 14:17*	*1*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*08/11/20 14:17*	*1*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/11/20 14:17*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: W-3-S/072920/
Date Collected: 07/29/20 12:15
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.6**		1.0	0.24	ug/L			08/11/20 22:18	1
1,1-Dichloroethane	**0.48**	**J**	1.0	0.41	ug/L			08/11/20 22:18	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 22:18	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 22:18	1
cis-1,2-Dichloroethene	**1.9**		1.0	0.38	ug/L			08/11/20 22:18	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 22:18	1
Tetrachloroethene	**110**		5.0	1.6	ug/L			08/11/20 14:39	5
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 22:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 22:18	1
Trichloroethene	**2.0**		1.0	0.36	ug/L			08/11/20 22:18	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 22:18	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 14:39*	*5*
1,2-Dichloroethane-d4 (Surr)	*110*		*75 - 130*		*08/11/20 22:18*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 14:39*	*5*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 22:18*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 14:39*	*5*
Dibromofluoromethane (Surr)	*99*		*78 - 129*		*08/11/20 22:18*	*1*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/11/20 14:39*	*5*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/11/20 22:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: W-4-S/072920/
Date Collected: 07/29/20 13:25
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.71**	**J**	2.0	0.48	ug/L			08/11/20 15:01	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/11/20 15:01	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/11/20 15:01	2
Benzene	2.0	U	2.0	0.77	ug/L			08/11/20 15:01	2
cis-1,2-Dichloroethene	**1.0**	**J**	2.0	0.76	ug/L			08/11/20 15:01	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/11/20 15:01	2
Tetrachloroethene	**37**		2.0	0.65	ug/L			08/11/20 15:01	2
Toluene	2.0	U	2.0	0.69	ug/L			08/11/20 15:01	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/11/20 15:01	2
Trichloroethene	**9.1**		2.0	0.72	ug/L			08/11/20 15:01	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/11/20 15:01	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/11/20 15:01	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 15:01*	*2*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 15:01*	*2*
Dibromofluoromethane (Surr)	*94*		*78 - 129*		*08/11/20 15:01*	*2*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 15:01*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Client Sample ID: HR-1/072920/
Date Collected: 07/29/20 15:10
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134169-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	10	U	10	2.4	ug/L			08/12/20 13:48	10
1,1-Dichloroethane	10	U	10	4.1	ug/L			08/12/20 13:48	10
1,1-Dichloroethene	10	U	10	4.6	ug/L			08/12/20 13:48	10
Benzene	10	U	10	3.8	ug/L			08/12/20 13:48	10
cis-1,2-Dichloroethene	**20**		10	3.8	ug/L			08/12/20 13:48	10
Ethylbenzene	10	U	10	3.9	ug/L			08/12/20 13:48	10
Tetrachloroethene	**120**		10	3.3	ug/L			08/12/20 13:48	10
Toluene	10	U	10	3.5	ug/L			08/12/20 13:48	10
trans-1,2-Dichloroethene	10	U	10	4.3	ug/L			08/12/20 13:48	10
Trichloroethene	**25**		10	3.6	ug/L			08/12/20 13:48	10
Vinyl chloride	10	U	10	5.0	ug/L			08/12/20 13:48	10
Xylenes, Total	20	U	20	4.2	ug/L			08/12/20 13:48	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/12/20 13:48*	*10*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/12/20 13:48*	*10*
Dibromofluoromethane (Surr)	*96*		*78 - 129*		*08/12/20 13:48*	*10*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/12/20 13:48*	*10*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	DBFM (78-129)	TOL (69-122)
240-134169-1	HR-17/072920/	103	77	95	91
240-134169-1	HR-17/072920/	107	80	92	95
240-134169-2	W-2-S/072920/	107	78	94	94
240-134169-3	W-3-S/072920/	107	79	92	94
240-134169-3	W-3-S/072920/	110	78	99	92
240-134169-4	W-4-S/072920/	108	78	94	96
240-134169-5	HR-1/072920/	108	80	96	95
240-134169-5 MS	HR-1/072920/	101	94	94	102
240-134169-5 MSD	HR-1/072920/	98	94	90	100
LCS 240-446554/4	Lab Control Sample	97	94	89	102
LCS 240-446771/4	Lab Control Sample	94	99	91	104
MB 240-446554/7	Method Blank	106	79	92	96
MB 240-446771/7	Method Blank	104	79	93	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-446554/7
Matrix: Water
Analysis Batch: 446554

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 13:34	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 13:34	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 13:34	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 13:34	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 13:34	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 13:34	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 13:34	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 13:34	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 13:34	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 13:34	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 13:34	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 13:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/11/20 13:34*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/11/20 13:34*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 13:34*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 13:34*	*1*

Lab Sample ID: LCS 240-446554/4
Matrix: Water
Analysis Batch: 446554

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	8.80		ug/L		88	65 - 141
1,1-Dichloroethane	10.0	9.75		ug/L		97	74 - 126
1,1-Dichloroethene	10.0	9.91		ug/L		99	73 - 129
Benzene	10.0	10.4		ug/L		104	77 - 123
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	75 - 124
Ethylbenzene	10.0	11.0		ug/L		110	80 - 120
m-Xylene & p-Xylene	10.0	10.9		ug/L		109	79 - 121
o-Xylene	10.0	10.8		ug/L		108	75 - 123
Tetrachloroethene	10.0	10.9		ug/L		109	70 - 125
Toluene	10.0	11.2		ug/L		112	79 - 122
trans-1,2-Dichloroethene	10.0	9.59		ug/L		96	74 - 130
Trichloroethene	10.0	9.66		ug/L		97	71 - 121
Vinyl chloride	10.0	10.7		ug/L		107	61 - 134
Xylenes, Total	20.0	21.7		ug/L		109	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*
Dibromofluoromethane (Surr)	*89*		*78 - 129*
Toluene-d8 (Surr)	*102*		*69 - 122*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-446771/7
Matrix: Water
Analysis Batch: 446771

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 13:26	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 13:26	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 13:26	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 13:26	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 13:26	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 13:26	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 13:26	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 13:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 13:26	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 13:26	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 13:26	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 13:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 130*		*08/12/20 13:26*	*1*
4-Bromofluorobenzene (Surr)	*79*		*47 - 134*		*08/12/20 13:26*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/12/20 13:26*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/12/20 13:26*	*1*

Lab Sample ID: LCS 240-446771/4
Matrix: Water
Analysis Batch: 446771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.34		ug/L		93	65 - 141
1,1-Dichloroethane	10.0	9.74		ug/L		97	74 - 126
1,1-Dichloroethene	10.0	9.98		ug/L		100	73 - 129
Benzene	10.0	10.6		ug/L		106	77 - 123
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	75 - 124
Ethylbenzene	10.0	11.1		ug/L		111	80 - 120
m-Xylene & p-Xylene	10.0	11.3		ug/L		113	79 - 121
o-Xylene	10.0	10.8		ug/L		108	75 - 123
Tetrachloroethene	10.0	11.2		ug/L		112	70 - 125
Toluene	10.0	11.4		ug/L		114	79 - 122
trans-1,2-Dichloroethene	10.0	9.90		ug/L		99	74 - 130
Trichloroethene	10.0	9.60		ug/L		96	71 - 121
Vinyl chloride	10.0	9.07		ug/L		91	61 - 134
Xylenes, Total	20.0	22.1		ug/L		111	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 130*
4-Bromofluorobenzene (Surr)	*99*		*47 - 134*
Dibromofluoromethane (Surr)	*91*		*78 - 129*
Toluene-d8 (Surr)	*104*		*69 - 122*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134169-5 MS
Matrix: Water
Analysis Batch: 446771

Client Sample ID: HR-1/072920/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10	U	100	78.9		ug/L		79	62 - 135
1,1-Dichloroethane	10	U	100	89.2		ug/L		89	71 - 121
1,1-Dichloroethene	10	U	100	90.1		ug/L		90	64 - 132
Benzene	10	U	100	94.6		ug/L		95	70 - 121
cis-1,2-Dichloroethene	20		100	112		ug/L		91	68 - 121
Ethylbenzene	10	U	100	89.2		ug/L		89	66 - 122
m-Xylene & p-Xylene	20	U	100	89.3		ug/L		89	65 - 123
o-Xylene	10	U	100	88.2		ug/L		88	63 - 124
Tetrachloroethene	120		100	198		ug/L		74	52 - 129
Toluene	10	U	100	94.8		ug/L		95	68 - 124
trans-1,2-Dichloroethene	10	U	100	88.1		ug/L		88	69 - 126
Trichloroethene	25		100	105		ug/L		80	56 - 124
Vinyl chloride	10	U	100	93.2		ug/L		93	49 - 136
Xylenes, Total	20	U	200	178		ug/L		89	64 - 124

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 130*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*
Dibromofluoromethane (Surr)	*94*		*78 - 129*
Toluene-d8 (Surr)	*102*		*69 - 122*

Lab Sample ID: 240-134169-5 MSD
Matrix: Water
Analysis Batch: 446771

Client Sample ID: HR-1/072920/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10	U	100	80.5		ug/L		80	62 - 135	2	35
1,1-Dichloroethane	10	U	100	88.7		ug/L		89	71 - 121	1	35
1,1-Dichloroethene	10	U	100	92.3		ug/L		92	64 - 132	2	35
Benzene	10	U	100	94.2		ug/L		94	70 - 121	0	35
cis-1,2-Dichloroethene	20		100	110		ug/L		89	68 - 121	2	35
Ethylbenzene	10	U	100	91.6		ug/L		92	66 - 122	3	35
m-Xylene & p-Xylene	20	U	100	90.0		ug/L		90	65 - 123	1	35
o-Xylene	10	U	100	91.0		ug/L		91	63 - 124	3	35
Tetrachloroethene	120		100	199		ug/L		75	52 - 129	1	35
Toluene	10	U	100	94.0		ug/L		94	68 - 124	1	35
trans-1,2-Dichloroethene	10	U	100	87.3		ug/L		87	69 - 126	1	35
Trichloroethene	25		100	104		ug/L		79	56 - 124	1	35
Vinyl chloride	10	U	100	88.9		ug/L		89	49 - 136	5	35
Xylenes, Total	20	U	200	181		ug/L		91	64 - 124	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*
Dibromofluoromethane (Surr)	*90*		*78 - 129*
Toluene-d8 (Surr)	*100*		*69 - 122*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134169-1

GC/MS VOA

Analysis Batch: 446554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134169-1	HR-17/072920/	Total/NA	Water	8260B	
240-134169-1	HR-17/072920/	Total/NA	Water	8260B	
240-134169-2	W-2-S/072920/	Total/NA	Water	8260B	
240-134169-3	W-3-S/072920/	Total/NA	Water	8260B	
240-134169-3	W-3-S/072920/	Total/NA	Water	8260B	
240-134169-4	W-4-S/072920/	Total/NA	Water	8260B	
MB 240-446554/7	Method Blank	Total/NA	Water	8260B	
LCS 240-446554/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 446771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134169-5	HR-1/072920/	Total/NA	Water	8260B	
MB 240-446771/7	Method Blank	Total/NA	Water	8260B	
LCS 240-446771/4	Lab Control Sample	Total/NA	Water	8260B	
240-134169-5 MS	HR-1/072920/	Total/NA	Water	8260B	
240-134169-5 MSD	HR-1/072920/	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 240-134169-1
Project/Site: Racer Moraine Annual

Client Sample ID: HR-17/072920/
Lab Sample ID: 240-134169-1
Date Collected: 07/29/20 09:55
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	446554	08/11/20 13:56	LEE	TAL CAN
Total/NA	Analysis	8260B		2	446554	08/11/20 21:56	LEE	TAL CAN

Client Sample ID: W-2-S/072920/
Lab Sample ID: 240-134169-2
Date Collected: 07/29/20 11:15
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446554	08/11/20 14:17	LEE	TAL CAN

Client Sample ID: W-3-S/072920/
Lab Sample ID: 240-134169-3
Date Collected: 07/29/20 12:15
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	446554	08/11/20 14:39	LEE	TAL CAN
Total/NA	Analysis	8260B		1	446554	08/11/20 22:18	LEE	TAL CAN

Client Sample ID: W-4-S/072920/
Lab Sample ID: 240-134169-4
Date Collected: 07/29/20 13:25
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	446554	08/11/20 15:01	LEE	TAL CAN

Client Sample ID: HR-1/072920/
Lab Sample ID: 240-134169-5
Date Collected: 07/29/20 15:10
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	446771	08/12/20 13:48	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134169-1
Project/Site: Racer Moraine Annual

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

0-3/12

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Hannah Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.3
Client Contact: Carolyn Grogan	Phone: 937-269-9271	E-Mail: Michael.DelMonico@Eurofinset.com		Page: Page 1 of 1 ~~Page 3 of 9~~
Company: ARCADIS U.S., Inc.				Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	VOC 10x Dilution	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S	A		
HR-17/072920/	7/29/20	0955	G	Water	N	N	X		X	4	
W-2-S/072920/	7/29/20	1115	G	Water	N	N	X			3	
W-3-S/072920/	7/29/20	1215	G	Water	N	N	X			3	
W-4-S/072920/	7/29/20	1325	G	Water	N	N	X		X	4	
HR-1/072920/	7/29/20	1510	G	Water	N	N	X			3	
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:



210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by: Hannah Smith	7/29/20 1540	Arcadis	Received by:	7/29/20 1540	Arcadis
Relinquished by:	7/29/20 1615	Arcadis	Received by:	7-29-2020 1615	ETA
Relinquished by:	7-29-2020 1630	ETA	Received by:	7-30-20 800	TMC

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 240-134164

Client Arcadis Site Name

Cooler Received on 7-30-20 Opened on 7-30-20

Cooler unpacked by:

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 0.3 °C Corrected Cooler Temp. 1.2 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC911298
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134220-1
Client Project/Site: Racer Moraine Annual

For:
ARCADIS U.S., Inc.
100 E. Campus View Blvd
Suite 200
Columbus, Ohio 43235

Attn: Carolyn Grogan

Authorized for release by:
8/14/2020 10:23:42 AM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Job ID: 240-134220-1
Project/Site: Racer Moraine Annual

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 240-134220-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Moraine Annual

Report Number: 240-134220-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/31/2020 8:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples HR-16 /072920/ (240-134220-1), EB-06 /072920/ (240-134220-2), RMW-95 /073020/ (240-134220-3), RMW-96 /073020/ (240-134220-4), RMW-97 /073020/ (240-134220-5), GM-38 /073020/ (240-134220-6), GM-9 /073020/ (240-134220-7), GM-80 /073020/ (240-134220-8), EAST /073020/ (240-134220-9), WEST /073020/ (240-134220-10), GM-36 /073020/ (240-134220-11), GM-35 /073020/ (240-134220-12), GM-37 /073020/ (240-134220-13), EB-05 /072920/ (240-134220-14), EB-07 /073020/ (240-134220-15), EB-08 /073020/ (240-134220-16) and TB-03 /073020/ (240-134220-17) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/06/2020, 08/11/2020 and 08/12/2020.

cis-1,2-Dichloroethene failed the recovery criteria high for the MSD of sample GM-35 /073020/MSD (240-134220-12) in batch 240-446552. Refer to the QC report for details.

Sample GM-35 /073020/ (240-134220-12)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following sample was submitted for volatile analysis with insufficient preservation (pH>2): RMW-97 /073020/ (240-134220-5).

The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: GM-35 /073020/

Job ID: 240-134220-1 (Continued)

Laboratory: Eurofins TestAmerica, Canton (Continued)

(240-134220-12). Elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) associated with batch 446552 recovered above the upper control limit for multiple analytes. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: HR-16 /072920/ (240-134220-1), EB-06 /072920/ (240-134220-2), RMW-95 /073020/ (240-134220-3), RMW-96 /073020/ (240-134220-4), GM-38 /073020/ (240-134220-6), GM-9 /073020/ (240-134220-7), GM-80 /073020/ (240-134220-8), EAST /073020/ (240-134220-9), WEST /073020/ (240-134220-10), GM-36 /073020/ (240-134220-11), GM-35 /073020/ (240-134220-12), GM-37 /073020/ (240-134220-13) and EB-05 /072920/ (240-134220-14).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134220-1
Project/Site: Racer Moraine Annual

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134220-1	HR-16 /072920/	Water	07/29/20 16:35	07/31/20 08:00	
240-134220-2	EB-06 /072920/	Water	07/29/20 17:00	07/31/20 08:00	
240-134220-3	RMW-95 /073020/	Water	07/30/20 09:30	07/31/20 08:00	
240-134220-4	RMW-96 /073020/	Water	07/30/20 10:50	07/31/20 08:00	
240-134220-5	RMW-97 /073020/	Water	07/30/20 12:00	07/31/20 08:00	
240-134220-6	GM-38 /073020/	Water	07/30/20 14:25	07/31/20 08:00	
240-134220-7	GM-9 /073020/	Water	07/30/20 09:10	07/31/20 08:00	
240-134220-8	GM-80 /073020/	Water	07/30/20 10:25	07/31/20 08:00	
240-134220-9	EAST /073020/	Water	07/30/20 11:45	07/31/20 08:00	
240-134220-10	WEST /073020/	Water	07/30/20 13:10	07/31/20 08:00	
240-134220-11	GM-36 /073020/	Water	07/30/20 14:10	07/31/20 08:00	
240-134220-12	GM-35 /073020/	Water	07/30/20 15:05	07/31/20 08:00	
240-134220-13	GM-37 /073020/	Water	07/30/20 15:35	07/31/20 08:00	
240-134220-14	EB-05 /072920/	Water	07/29/20 16:40	07/31/20 08:00	
240-134220-15	EB-07 /073020/	Water	07/30/20 15:45	07/31/20 08:00	
240-134220-16	EB-08 /073020/	Water	07/30/20 16:00	07/31/20 08:00	
240-134220-17	TB-03 /073020/	Water	07/30/20 00:00	07/31/20 08:00	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: HR-16 /072920/ — Lab Sample ID: 240-134220-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.52	J	1.0	0.24	ug/L	1		8260B	Total/NA
1,1-Dichloroethane	0.67	J	1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.45	J	1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	0.42	J	1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	2.8		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: EB-06 /072920/ — Lab Sample ID: 240-134220-2

No Detections.

Client Sample ID: RMW-95 /073020/ — Lab Sample ID: 240-134220-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.48	J	1.0	0.24	ug/L	1		8260B	Total/NA
Tetrachloroethene	8.4		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	1.2		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: RMW-96 /073020/ — Lab Sample ID: 240-134220-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	2.7		1.0	0.33	ug/L	1		8260B	Total/NA

Client Sample ID: RMW-97 /073020/ — Lab Sample ID: 240-134220-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3.3		1.0	0.33	ug/L	1		8260B	Total/NA

Client Sample ID: GM-38 /073020/ — Lab Sample ID: 240-134220-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	1.4		1.0	0.24	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	1.5		1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	20		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	3.4		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: GM-9 /073020/ — Lab Sample ID: 240-134220-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.90	J	1.0	0.24	ug/L	1		8260B	Total/NA
Trichloroethene	13		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: GM-80 /073020/ — Lab Sample ID: 240-134220-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.92	J	1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	12		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	2.0		1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: EAST /073020/ — Lab Sample ID: 240-134220-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	15		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	1.6		1.0	0.36	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: WEST /073020/ — Lab Sample ID: 240-134220-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	1.7		1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	6.0		1.0	0.38	ug/L	1		8260B	Total/NA
Tetrachloroethene	13		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	4.4		1.0	0.36	ug/L	1		8260B	Total/NA
Vinyl chloride	0.98	J	1.0	0.50	ug/L	1		8260B	Total/NA

Client Sample ID: GM-36 /073020/ — Lab Sample ID: 240-134220-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	11		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	0.82	J	1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: GM-35 /073020/ — Lab Sample ID: 240-134220-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	19	J	20	8.1	ug/L	20		8260B	Total/NA
cis-1,2-Dichloroethene	92	F1	20	7.6	ug/L	20		8260B	Total/NA
Tetrachloroethene	13	J	20	6.5	ug/L	20		8260B	Total/NA
trans-1,2-Dichloroethene	9.0	J	20	8.7	ug/L	20		8260B	Total/NA
Trichloroethene	150		20	7.2	ug/L	20		8260B	Total/NA

Client Sample ID: GM-37 /073020/ — Lab Sample ID: 240-134220-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	7.7		1.0	0.33	ug/L	1		8260B	Total/NA
Trichloroethene	0.89	J	1.0	0.36	ug/L	1		8260B	Total/NA

Client Sample ID: EB-05 /072920/ — Lab Sample ID: 240-134220-14

No Detections.

Client Sample ID: EB-07 /073020/ — Lab Sample ID: 240-134220-15

No Detections.

Client Sample ID: EB-08 /073020/ — Lab Sample ID: 240-134220-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.62	J	1.0	0.38	ug/L	1		8260B	Total/NA

Client Sample ID: TB-03 /073020/ — Lab Sample ID: 240-134220-17

No Detections.

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: HR-16 /072920/
Date Collected: 07/29/20 16:35
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.52**	**J**	1.0	0.24	ug/L			08/11/20 13:56	1
1,1-Dichloroethane	**0.67**	**J**	1.0	0.41	ug/L			08/11/20 13:56	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 13:56	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 13:56	1
cis-1,2-Dichloroethene	**0.45**	**J**	1.0	0.38	ug/L			08/11/20 13:56	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 13:56	1
Tetrachloroethene	**0.42**	**J**	1.0	0.33	ug/L			08/11/20 13:56	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 13:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 13:56	1
Trichloroethene	**2.8**		1.0	0.36	ug/L			08/11/20 13:56	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 13:56	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 13:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 130*		*08/11/20 13:56*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/11/20 13:56*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 129*		*08/11/20 13:56*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 13:56*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-06 /072920/
Date Collected: 07/29/20 17:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 14:18	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 14:18	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 14:18	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 14:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 14:18	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 14:18	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 14:18	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 14:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 14:18	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 14:18	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 14:18	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 14:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*08/11/20 14:18*	*1*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*		*08/11/20 14:18*	*1*
Dibromofluoromethane (Surr)	*113*		*78 - 129*		*08/11/20 14:18*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 14:18*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: RMW-95 /073020/
Date Collected: 07/30/20 09:30
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.48**	**J**	1.0	0.24	ug/L			08/11/20 14:41	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 14:41	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 14:41	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 14:41	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 14:41	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 14:41	1
Tetrachloroethene	**8.4**		1.0	0.33	ug/L			08/11/20 14:41	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 14:41	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 14:41	1
Trichloroethene	**1.2**		1.0	0.36	ug/L			08/11/20 14:41	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 14:41	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 14:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*08/11/20 14:41*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/11/20 14:41*	*1*
Dibromofluoromethane (Surr)	*115*		*78 - 129*		*08/11/20 14:41*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/11/20 14:41*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: RMW-96 /073020/
Date Collected: 07/30/20 10:50
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 15:03	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 15:03	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 15:03	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 15:03	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 15:03	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 15:03	1
Tetrachloroethene	**2.7**		1.0	0.33	ug/L			08/11/20 15:03	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 15:03	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 15:03	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 15:03	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 15:03	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 15:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 15:03*	*1*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/11/20 15:03*	*1*
Dibromofluoromethane (Surr)	*117*		*78 - 129*		*08/11/20 15:03*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 15:03*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: RMW-97 /073020/
Date Collected: 07/30/20 12:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/06/20 11:59	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/06/20 11:59	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/06/20 11:59	1
Benzene	1.0	U	1.0	0.38	ug/L			08/06/20 11:59	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/06/20 11:59	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/06/20 11:59	1
Tetrachloroethene	**3.3**		1.0	0.33	ug/L			08/06/20 11:59	1
Toluene	1.0	U	1.0	0.35	ug/L			08/06/20 11:59	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/06/20 11:59	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/06/20 11:59	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/06/20 11:59	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/06/20 11:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/06/20 11:59*	*1*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/06/20 11:59*	*1*
Dibromofluoromethane (Surr)	*83*		*78 - 129*		*08/06/20 11:59*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/06/20 11:59*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-38 /073020/
Date Collected: 07/30/20 14:25
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.4**		1.0	0.24	ug/L			08/11/20 15:26	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 15:26	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 15:26	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 15:26	1
cis-1,2-Dichloroethene	**1.5**		1.0	0.38	ug/L			08/11/20 15:26	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 15:26	1
Tetrachloroethene	**20**		1.0	0.33	ug/L			08/11/20 15:26	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 15:26	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 15:26	1
Trichloroethene	**3.4**		1.0	0.36	ug/L			08/11/20 15:26	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 15:26	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 15:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 15:26*	*1*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*		*08/11/20 15:26*	*1*
Dibromofluoromethane (Surr)	*117*		*78 - 129*		*08/11/20 15:26*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 15:26*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-9 /073020/
Date Collected: 07/30/20 09:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-7
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.90**	**J**	1.0	0.24	ug/L			08/11/20 15:48	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 15:48	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 15:48	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 15:48	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 15:48	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 15:48	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 15:48	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 15:48	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 15:48	1
Trichloroethene	**13**		1.0	0.36	ug/L			08/11/20 15:48	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 15:48	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 130*		*08/11/20 15:48*	*1*
4-Bromofluorobenzene (Surr)	*103*		*47 - 134*		*08/11/20 15:48*	*1*
Dibromofluoromethane (Surr)	*120*		*78 - 129*		*08/11/20 15:48*	*1*
Toluene-d8 (Surr)	*103*		*69 - 122*		*08/11/20 15:48*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-80 /073020/
Date Collected: 07/30/20 10:25
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-8
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 16:10	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 16:10	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 16:10	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 16:10	1
cis-1,2-Dichloroethene	**0.92**	**J**	1.0	0.38	ug/L			08/11/20 16:10	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 16:10	1
Tetrachloroethene	**12**		1.0	0.33	ug/L			08/11/20 16:10	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 16:10	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 16:10	1
Trichloroethene	**2.0**		1.0	0.36	ug/L			08/11/20 16:10	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 16:10	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 16:10*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 16:10*	*1*
Dibromofluoromethane (Surr)	*119*		*78 - 129*		*08/11/20 16:10*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/11/20 16:10*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EAST /073020/
Date Collected: 07/30/20 11:45
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-9
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 16:32	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 16:32	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 16:32	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 16:32	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 16:32	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 16:32	1
Tetrachloroethene	**15**		1.0	0.33	ug/L			08/11/20 16:32	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 16:32	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 16:32	1
Trichloroethene	**1.6**		1.0	0.36	ug/L			08/11/20 16:32	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 16:32	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*08/11/20 16:32*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 16:32*	*1*
Dibromofluoromethane (Surr)	*117*		*78 - 129*		*08/11/20 16:32*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 16:32*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: WEST /073020/
Date Collected: 07/30/20 13:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-10
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 16:54	1
1,1-Dichloroethane	**1.7**		1.0	0.41	ug/L			08/11/20 16:54	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 16:54	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 16:54	1
cis-1,2-Dichloroethene	**6.0**		1.0	0.38	ug/L			08/11/20 16:54	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 16:54	1
Tetrachloroethene	**13**		1.0	0.33	ug/L			08/11/20 16:54	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 16:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 16:54	1
Trichloroethene	**4.4**		1.0	0.36	ug/L			08/11/20 16:54	1
Vinyl chloride	**0.98**	**J**	1.0	0.50	ug/L			08/11/20 16:54	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 130*		*08/11/20 16:54*	*1*
4-Bromofluorobenzene (Surr)	*104*		*47 - 134*		*08/11/20 16:54*	*1*
Dibromofluoromethane (Surr)	*121*		*78 - 129*		*08/11/20 16:54*	*1*
Toluene-d8 (Surr)	*103*		*69 - 122*		*08/11/20 16:54*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-36 /073020/
Date Collected: 07/30/20 14:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-11
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 17:17	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 17:17	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 17:17	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 17:17	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 17:17	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 17:17	1
Tetrachloroethene	**11**		1.0	0.33	ug/L			08/11/20 17:17	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 17:17	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 17:17	1
Trichloroethene	**0.82**	**J**	1.0	0.36	ug/L			08/11/20 17:17	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 17:17	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*08/11/20 17:17*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 17:17*	*1*
Dibromofluoromethane (Surr)	*116*		*78 - 129*		*08/11/20 17:17*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/11/20 17:17*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-35 /073020/
Date Collected: 07/30/20 15:05
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-12
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	20	U	20	4.8	ug/L			08/11/20 17:39	20
1,1-Dichloroethane	**19**	**J**	20	8.1	ug/L			08/11/20 17:39	20
1,1-Dichloroethene	20	U	20	9.2	ug/L			08/11/20 17:39	20
Benzene	20	U	20	7.7	ug/L			08/11/20 17:39	20
cis-1,2-Dichloroethene	**92**	**F1**	20	7.6	ug/L			08/11/20 17:39	20
Ethylbenzene	20	U	20	7.8	ug/L			08/11/20 17:39	20
Tetrachloroethene	**13**	**J**	20	6.5	ug/L			08/11/20 17:39	20
Toluene	20	U	20	6.9	ug/L			08/11/20 17:39	20
trans-1,2-Dichloroethene	**9.0**	**J**	20	8.7	ug/L			08/11/20 17:39	20
Trichloroethene	**150**		20	7.2	ug/L			08/11/20 17:39	20
Vinyl chloride	20	U	20	9.9	ug/L			08/11/20 17:39	20
Xylenes, Total	40	U	40	8.5	ug/L			08/11/20 17:39	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 130*		*08/11/20 17:39*	*20*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*		*08/11/20 17:39*	*20*
Dibromofluoromethane (Surr)	*112*		*78 - 129*		*08/11/20 17:39*	*20*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/11/20 17:39*	*20*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-37 /073020/
Date Collected: 07/30/20 15:35
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-13
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 18:01	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 18:01	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 18:01	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 18:01	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 18:01	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 18:01	1
Tetrachloroethene	**7.7**		1.0	0.33	ug/L			08/11/20 18:01	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 18:01	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 18:01	1
Trichloroethene	**0.89**	**J**	1.0	0.36	ug/L			08/11/20 18:01	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 18:01	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*		*08/11/20 18:01*	*1*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*		*08/11/20 18:01*	*1*
Dibromofluoromethane (Surr)	*114*		*78 - 129*		*08/11/20 18:01*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 18:01*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-05 /072920/
Date Collected: 07/29/20 16:40
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-14
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 18:24	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 18:24	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 18:24	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 18:24	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 18:24	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 18:24	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 18:24	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 18:24	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 18:24	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 18:24	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 18:24	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 18:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 130*		*08/11/20 18:24*	*1*
4-Bromofluorobenzene (Surr)	*94*		*47 - 134*		*08/11/20 18:24*	*1*
Dibromofluoromethane (Surr)	*108*		*78 - 129*		*08/11/20 18:24*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 18:24*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-07 /073020/
Date Collected: 07/30/20 15:45
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-15
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 17:06	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 17:06	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 17:06	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 17:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 17:06	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 17:06	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 17:06	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 17:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 17:06	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 17:06	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 17:06	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 130*		*08/12/20 17:06*	*1*
4-Bromofluorobenzene (Surr)	*91*		*47 - 134*		*08/12/20 17:06*	*1*
Dibromofluoromethane (Surr)	*111*		*78 - 129*		*08/12/20 17:06*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/12/20 17:06*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-08 /073020/
Date Collected: 07/30/20 16:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-16
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 17:29	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 17:29	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 17:29	1
Benzene	**0.62**	**J**	1.0	0.38	ug/L			08/12/20 17:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 17:29	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 17:29	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 17:29	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 17:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 17:29	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 17:29	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 17:29	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 17:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 130*		*08/12/20 17:29*	*1*
4-Bromofluorobenzene (Surr)	*100*		*47 - 134*		*08/12/20 17:29*	*1*
Dibromofluoromethane (Surr)	*118*		*78 - 129*		*08/12/20 17:29*	*1*
Toluene-d8 (Surr)	*99*		*69 - 122*		*08/12/20 17:29*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: TB-03 /073020/
Date Collected: 07/30/20 00:00
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-17
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 17:51	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 17:51	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 17:51	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 17:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 17:51	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 17:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 17:51	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 17:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 17:51	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 17:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 17:51	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 17:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*75 - 130*		*08/12/20 17:51*	*1*
4-Bromofluorobenzene (Surr)	*88*		*47 - 134*		*08/12/20 17:51*	*1*
Dibromofluoromethane (Surr)	*106*		*78 - 129*		*08/12/20 17:51*	*1*
Toluene-d8 (Surr)	*90*		*69 - 122*		*08/12/20 17:51*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (75-130)	BFB (47-134)	DBFM (78-129)	TOL (69-122)
240-134220-1	HR-16 /072920/	100	97	118	98
240-134220-2	EB-06 /072920/	97	94	113	98
240-134220-3	RMW-95 /073020/	98	97	115	99
240-134220-4	RMW-96 /073020/	99	95	117	98
240-134220-5	RMW-97 /073020/	99	80	83	97
240-134220-6	GM-38 /073020/	99	97	117	98
240-134220-7	GM-9 /073020/	100	103	120	103
240-134220-8	GM-80 /073020/	99	96	119	99
240-134220-9	EAST /073020/	97	96	117	95
240-134220-10	WEST /073020/	99	104	121	103
240-134220-11	GM-36 /073020/	98	96	116	98
240-134220-12	GM-35 /073020/	95	95	112	99
240-134220-12 MS	GM-35 /073020/	98	95	117	96
240-134220-12 MSD	GM-35 /073020/	98	97	117	101
240-134220-13	GM-37 /073020/	97	96	114	97
240-134220-14	EB-05 /072920/	93	94	108	96
240-134220-15	EB-07 /073020/	94	91	111	95
240-134220-16	EB-08 /073020/	103	100	118	99
240-134220-17	TB-03 /073020/	89	88	106	90
LCS 240-445898/4	Lab Control Sample	96	92	88	102
LCS 240-446552/4	Lab Control Sample	97	101	119	98
LCS 240-446768/4	Lab Control Sample	98	97	117	98
MB 240-445898/7	Method Blank	98	81	84	98
MB 240-446552/6	Method Blank	94	92	109	96
MB 240-446768/6	Method Blank	92	88	109	92

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-445898/7
Matrix: Water
Analysis Batch: 445898

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/06/20 10:54	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/06/20 10:54	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/06/20 10:54	1
Benzene	1.0	U	1.0	0.38	ug/L			08/06/20 10:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/06/20 10:54	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/06/20 10:54	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/06/20 10:54	1
Toluene	1.0	U	1.0	0.35	ug/L			08/06/20 10:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/06/20 10:54	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/06/20 10:54	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/06/20 10:54	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/06/20 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*		*08/06/20 10:54*	*1*
4-Bromofluorobenzene (Surr)	*81*		*47 - 134*		*08/06/20 10:54*	*1*
Dibromofluoromethane (Surr)	*84*		*78 - 129*		*08/06/20 10:54*	*1*
Toluene-d8 (Surr)	*98*		*69 - 122*		*08/06/20 10:54*	*1*

Lab Sample ID: LCS 240-445898/4
Matrix: Water
Analysis Batch: 445898

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.18		ug/L		92	65 - 141
1,1-Dichloroethane	10.0	9.75		ug/L		98	74 - 126
1,1-Dichloroethene	10.0	10.6		ug/L		106	73 - 129
Benzene	10.0	10.6		ug/L		106	77 - 123
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	75 - 124
Ethylbenzene	10.0	11.2		ug/L		112	80 - 120
m-Xylene & p-Xylene	10.0	11.0		ug/L		110	79 - 121
o-Xylene	10.0	11.0		ug/L		110	75 - 123
Tetrachloroethene	10.0	11.3		ug/L		113	70 - 125
Toluene	10.0	11.4		ug/L		114	79 - 122
trans-1,2-Dichloroethene	10.0	9.59		ug/L		96	74 - 130
Trichloroethene	10.0	9.76		ug/L		98	71 - 121
Vinyl chloride	10.0	9.47		ug/L		95	61 - 134
Xylenes, Total	20.0	22.0		ug/L		110	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 130*
4-Bromofluorobenzene (Surr)	*92*		*47 - 134*
Dibromofluoromethane (Surr)	*88*		*78 - 129*
Toluene-d8 (Surr)	*102*		*69 - 122*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-446552/6
Matrix: Water
Analysis Batch: 446552

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 10:56	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 10:56	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 10:56	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 10:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 10:56	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 10:56	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 10:56	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 10:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 10:56	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 10:56	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 10:56	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 10:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 130*		*08/11/20 10:56*	*1*
4-Bromofluorobenzene (Surr)	*92*		*47 - 134*		*08/11/20 10:56*	*1*
Dibromofluoromethane (Surr)	*109*		*78 - 129*		*08/11/20 10:56*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 10:56*	*1*

Lab Sample ID: LCS 240-446552/4
Matrix: Water
Analysis Batch: 446552

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	11.7		ug/L		117	65 - 141
1,1-Dichloroethane	10.0	11.1		ug/L		111	74 - 126
1,1-Dichloroethene	10.0	12.2		ug/L		122	73 - 129
Benzene	10.0	10.8		ug/L		108	77 - 123
cis-1,2-Dichloroethene	10.0	11.7		ug/L		117	75 - 124
Ethylbenzene	10.0	10.8		ug/L		108	80 - 120
m-Xylene & p-Xylene	10.0	10.8		ug/L		108	79 - 121
o-Xylene	10.0	11.2		ug/L		112	75 - 123
Tetrachloroethene	10.0	11.0		ug/L		110	70 - 125
Toluene	10.0	10.1		ug/L		101	79 - 122
trans-1,2-Dichloroethene	10.0	11.7		ug/L		117	74 - 130
Trichloroethene	10.0	10.9		ug/L		109	71 - 121
Vinyl chloride	10.0	12.3		ug/L		123	61 - 134
Xylenes, Total	20.0	22.0		ug/L		110	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 130*
4-Bromofluorobenzene (Surr)	*101*		*47 - 134*
Dibromofluoromethane (Surr)	*119*		*78 - 129*
Toluene-d8 (Surr)	*98*		*69 - 122*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-134220-12 MS
Matrix: Water
Analysis Batch: 446552

Client Sample ID: GM-35 /073020/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20	U	200	205		ug/L		103	62 - 135
1,1-Dichloroethane	19	J	200	243		ug/L		112	71 - 121
1,1-Dichloroethene	20	U	200	228		ug/L		114	64 - 132
Benzene	20	U	200	201		ug/L		100	70 - 121
cis-1,2-Dichloroethene	92	F1	200	333		ug/L		120	68 - 121
Ethylbenzene	20	U	200	181		ug/L		91	66 - 122
m-Xylene & p-Xylene	40	U	200	178		ug/L		89	65 - 123
o-Xylene	20	U	200	193		ug/L		97	63 - 124
Tetrachloroethene	13	J	200	185		ug/L		86	52 - 129
Toluene	20	U	200	179		ug/L		90	68 - 124
trans-1,2-Dichloroethene	9.0	J	200	242		ug/L		117	69 - 126
Trichloroethene	150		200	352		ug/L		102	56 - 124
Vinyl chloride	20	U	200	232		ug/L		116	49 - 136
Xylenes, Total	40	U	400	371		ug/L		93	64 - 124

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*
4-Bromofluorobenzene (Surr)	*95*		*47 - 134*
Dibromofluoromethane (Surr)	*117*		*78 - 129*
Toluene-d8 (Surr)	*96*		*69 - 122*

Lab Sample ID: 240-134220-12 MSD
Matrix: Water
Analysis Batch: 446552

Client Sample ID: GM-35 /073020/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	20	U	200	234		ug/L		117	62 - 135	13	35
1,1-Dichloroethane	19	J	200	252		ug/L		117	71 - 121	4	35
1,1-Dichloroethene	20	U	200	245		ug/L		123	64 - 132	7	35
Benzene	20	U	200	219		ug/L		109	70 - 121	8	35
cis-1,2-Dichloroethene	92	F1	200	339	F1	ug/L		123	68 - 121	2	35
Ethylbenzene	20	U	200	214		ug/L		107	66 - 122	16	35
m-Xylene & p-Xylene	40	U	200	208		ug/L		104	65 - 123	16	35
o-Xylene	20	U	200	221		ug/L		110	63 - 124	13	35
Tetrachloroethene	13	J	200	227		ug/L		107	52 - 129	20	35
Toluene	20	U	200	202		ug/L		101	68 - 124	12	35
trans-1,2-Dichloroethene	9.0	J	200	253		ug/L		122	69 - 126	4	35
Trichloroethene	150		200	376		ug/L		114	56 - 124	7	35
Vinyl chloride	20	U	200	249		ug/L		125	49 - 136	7	35
Xylenes, Total	40	U	400	429		ug/L		107	64 - 124	15	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*
Dibromofluoromethane (Surr)	*117*		*78 - 129*
Toluene-d8 (Surr)	*101*		*69 - 122*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-446768/6
Matrix: Water
Analysis Batch: 446768

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/12/20 11:54	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/12/20 11:54	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/12/20 11:54	1
Benzene	1.0	U	1.0	0.38	ug/L			08/12/20 11:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/12/20 11:54	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/12/20 11:54	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/12/20 11:54	1
Toluene	1.0	U	1.0	0.35	ug/L			08/12/20 11:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/12/20 11:54	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/12/20 11:54	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/12/20 11:54	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/12/20 11:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 130*		*08/12/20 11:54*	*1*
4-Bromofluorobenzene (Surr)	*88*		*47 - 134*		*08/12/20 11:54*	*1*
Dibromofluoromethane (Surr)	*109*		*78 - 129*		*08/12/20 11:54*	*1*
Toluene-d8 (Surr)	*92*		*69 - 122*		*08/12/20 11:54*	*1*

Lab Sample ID: LCS 240-446768/4
Matrix: Water
Analysis Batch: 446768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	11.2		ug/L		112	65 - 141
1,1-Dichloroethane	10.0	11.1		ug/L		111	74 - 126
1,1-Dichloroethene	10.0	12.2		ug/L		122	73 - 129
Benzene	10.0	10.5		ug/L		105	77 - 123
cis-1,2-Dichloroethene	10.0	11.8		ug/L		118	75 - 124
Ethylbenzene	10.0	10.5		ug/L		105	80 - 120
m-Xylene & p-Xylene	10.0	10.4		ug/L		104	79 - 121
o-Xylene	10.0	11.0		ug/L		110	75 - 123
Tetrachloroethene	10.0	10.5		ug/L		105	70 - 125
Toluene	10.0	9.79		ug/L		98	79 - 122
trans-1,2-Dichloroethene	10.0	12.1		ug/L		121	74 - 130
Trichloroethene	10.0	10.4		ug/L		104	71 - 121
Vinyl chloride	10.0	11.5		ug/L		115	61 - 134
Xylenes, Total	20.0	21.4		ug/L		107	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*
4-Bromofluorobenzene (Surr)	*97*		*47 - 134*
Dibromofluoromethane (Surr)	*117*		*78 - 129*
Toluene-d8 (Surr)	*98*		*69 - 122*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

GC/MS VOA

Analysis Batch: 445898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134220-5	RMW-97 /073020/	Total/NA	Water	8260B	
MB 240-445898/7	Method Blank	Total/NA	Water	8260B	
LCS 240-445898/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 446552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134220-1	HR-16 /072920/	Total/NA	Water	8260B	
240-134220-2	EB-06 /072920/	Total/NA	Water	8260B	
240-134220-3	RMW-95 /073020/	Total/NA	Water	8260B	
240-134220-4	RMW-96 /073020/	Total/NA	Water	8260B	
240-134220-6	GM-38 /073020/	Total/NA	Water	8260B	
240-134220-7	GM-9 /073020/	Total/NA	Water	8260B	
240-134220-8	GM-80 /073020/	Total/NA	Water	8260B	
240-134220-9	EAST /073020/	Total/NA	Water	8260B	
240-134220-10	WEST /073020/	Total/NA	Water	8260B	
240-134220-11	GM-36 /073020/	Total/NA	Water	8260B	
240-134220-12	GM-35 /073020/	Total/NA	Water	8260B	
240-134220-13	GM-37 /073020/	Total/NA	Water	8260B	
240-134220-14	EB-05 /072920/	Total/NA	Water	8260B	
MB 240-446552/6	Method Blank	Total/NA	Water	8260B	
LCS 240-446552/4	Lab Control Sample	Total/NA	Water	8260B	
240-134220-12 MS	GM-35 /073020/	Total/NA	Water	8260B	
240-134220-12 MSD	GM-35 /073020/	Total/NA	Water	8260B	

Analysis Batch: 446768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134220-15	EB-07 /073020/	Total/NA	Water	8260B	
240-134220-16	EB-08 /073020/	Total/NA	Water	8260B	
240-134220-17	TB-03 /073020/	Total/NA	Water	8260B	
MB 240-446768/6	Method Blank	Total/NA	Water	8260B	
LCS 240-446768/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: HR-16 /072920/ — Lab Sample ID: 240-134220-1

Date Collected: 07/29/20 16:35 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 13:56	LEE	TAL CAN

Client Sample ID: EB-06 /072920/ — Lab Sample ID: 240-134220-2

Date Collected: 07/29/20 17:00 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 14:18	LEE	TAL CAN

Client Sample ID: RMW-95 /073020/ — Lab Sample ID: 240-134220-3

Date Collected: 07/30/20 09:30 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 14:41	LEE	TAL CAN

Client Sample ID: RMW-96 /073020/ — Lab Sample ID: 240-134220-4

Date Collected: 07/30/20 10:50 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 15:03	LEE	TAL CAN

Client Sample ID: RMW-97 /073020/ — Lab Sample ID: 240-134220-5

Date Collected: 07/30/20 12:00 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	445898	08/06/20 11:59	LEE	TAL CAN

Client Sample ID: GM-38 /073020/ — Lab Sample ID: 240-134220-6

Date Collected: 07/30/20 14:25 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 15:26	LEE	TAL CAN

Client Sample ID: GM-9 /073020/ — Lab Sample ID: 240-134220-7

Date Collected: 07/30/20 09:10 — **Matrix: Water**
Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 15:48	LEE	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: GM-80 /073020/
Date Collected: 07/30/20 10:25
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 16:10	LEE	TAL CAN

Client Sample ID: EAST /073020/
Date Collected: 07/30/20 11:45
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 16:32	LEE	TAL CAN

Client Sample ID: WEST /073020/
Date Collected: 07/30/20 13:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 16:54	LEE	TAL CAN

Client Sample ID: GM-36 /073020/
Date Collected: 07/30/20 14:10
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 17:17	LEE	TAL CAN

Client Sample ID: GM-35 /073020/
Date Collected: 07/30/20 15:05
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	446552	08/11/20 17:39	LEE	TAL CAN

Client Sample ID: GM-37 /073020/
Date Collected: 07/30/20 15:35
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 18:01	LEE	TAL CAN

Client Sample ID: EB-05 /072920/
Date Collected: 07/29/20 16:40
Date Received: 07/31/20 08:00

Lab Sample ID: 240-134220-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446552	08/11/20 18:24	LEE	TAL CAN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134220-1

Client Sample ID: EB-07 /073020/

Lab Sample ID: 240-134220-15

Date Collected: 07/30/20 15:45

Matrix: Water

Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446768	08/12/20 17:06	LEE	TAL CAN

Client Sample ID: EB-08 /073020/

Lab Sample ID: 240-134220-16

Date Collected: 07/30/20 16:00

Matrix: Water

Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446768	08/12/20 17:29	LEE	TAL CAN

Client Sample ID: TB-03 /073020/

Lab Sample ID: 240-134220-17

Date Collected: 07/30/20 00:00

Matrix: Water

Date Received: 07/31/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446768	08/12/20 17:51	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134220-1
Project/Site: Racer Moraine Annual

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

0.2/1.1

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.6
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 2 Page 6 of 9
Company: ARCADIS U.S., Inc.				Job #:

Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:	Analysis Requested
City: Columbus	TAT Requested (days): Standard	
State, Zip: OH, 43235		
Phone:	PO #: 30042873.0004B	
Email: carolyn.grogan@arcadis.com	WO #:	
Project Name: Racer Moraine Annual	Project #: 24006917	
Site: RACER Moraine	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
FB-16/072920/	7/29/20	1635	G	Water	N	N	X		3	
EB-06/072920/	7/29/20	1700	G	Water	N	N	X		3	
RMW-95/073020/	7/30/20	0930	G	Water	N	N	X		3	
RMW-96/073020/	7/30/20	1050	G	Water	N	N	X		3	
RMW-97/073020/	7/30/20	1200	G	Water	N	N	X		3	
GM-35/073020/	7/30/20	1435	G	Water	N	N	X		3	
GM-9/073020/	7/30/20	0910	G	Water	N	N	X		3	
GM-80/073020/	7/30/20	1025	G	Water	N	N	X		3	
~~EAST/070~~ EAST/073020/	7/30/20	1145	G	Water	N	N	X		3	
WEST/073020/	7/30/20	1310	G	Water	N	N	X		3	
GM-36/073020/	7/30/20	1410	G	Water	N	N	X		3	

240-134220 Chain of Custody

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7/30/20 1616	Arcadis		7-30-20 16:2[illegible]	ETA
	7-30-20 16:30	ETA		7-31-20 800	ETA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

0.2/1.1

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, H. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.7
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 2 of 2 ~~Page 2 of 2~~
Company: ARCADIS U.S., Inc.				Job #:

Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:
City: Columbus	TAT Requested (days): Standard
State, Zip: OH, 43235	
Phone:	PO #: 30042873.0004B
Email: carolyn.grogan@arcadis.com	WO #:
Project Name: Racer Moraine Annual	Project #: 24006917
Site: RACER Moraine	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
GM-35/073020/	7/30/20	1505	G	Water	N	N	X		3	
GM-37/073020/	7/30/20	1535	G	Water	N	N	X		3	
~~EB-05/073020~~ EB-05/072920/	7/29/20	1640	G	Water	N	N	X		3	
EB-07/073020/	7/30/20	1545	G	Water	N	N	X		3	
EB-08/073020/	7/30/20	1600	G	Water	N	N	X		3	
TB-03/073020/	7/30/20	-	G	Water	N	N	X		2	
				Water						
				Water						
				Water						
				Water						
				Water						

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7/30/20 1616	Arcadis		7-30-20 16:20	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7-30-20 16:30	ETA		7-31-20 808	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 134220

Client ARCADIS Site Name

Cooler Received on 7-31-20 Opened on 7-31-20

Cooler unpacked by: Tammy Reyes

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 0.2 °C Corrected Cooler Temp. 1.1 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	(No)
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes)	No
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	Yes	(No)
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No (NA) pH Strip Lot# HC911298
13. Were VOAs on the COC?	(Yes)	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	(No) NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	(Yes)	No
16. Was a LL Hg or Me Hg trip blank present?	(Yes)	No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container.

Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-134166-1
Client Project/Site: Racer Moraine Annual

For:
ARCADIS U.S., Inc.
100 E. Campus View Blvd
Suite 200
Columbus, Ohio 43235

Attn: Carolyn Grogan

Authorized for release by:
8/13/2020 2:27:40 PM

Michael DelMonico, Project Manager I
(330)497-9396
Michael.DelMonico@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Job ID: 240-134166-1
Project/Site: Racer Moraine Annual

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 240-134166-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

CASE NARRATIVE

Client: ARCADIS U.S., Inc.

Project: Racer Moraine Annual

Report Number: 240-134166-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, Canton attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 7/30/2020 8:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.2° C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples RMW-98/072820/ (240-134166-1), EB-04/072820/ (240-134166-2), GM-20D/072920/ (240-134166-3), GM-15/072920/ (240-134166-4), EB-03/072820/ (240-134166-5) and TB-02/072920/ (240-134166-6) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 08/11/2020.

Sample RMW-98/072820/ (240-134166-1)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134166-1
Project/Site: Racer Moraine Annual

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-134166-1	RMW-98/072820/	Water	07/28/20 16:25	07/30/20 08:00	
240-134166-2	EB-04/072820/	Water	07/28/20 16:55	07/30/20 08:00	
240-134166-3	GM-20D/072920/	Water	07/29/20 14:30	07/30/20 08:00	
240-134166-4	GM-15/072920/	Water	07/29/20 15:25	07/30/20 08:00	
240-134166-5	EB-03/072820/	Water	07/28/20 16:40	07/30/20 08:00	
240-134166-6	TB-02/072920/	Water	07/29/20 00:00	07/30/20 08:00	

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: RMW-98/072820/ — Lab Sample ID: 240-134166-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,1-Trichloroethane	0.55	J	2.0	0.48	ug/L	2		8260B	Total/NA
Tetrachloroethene	42		2.0	0.65	ug/L	2		8260B	Total/NA

Client Sample ID: EB-04/072820/ — Lab Sample ID: 240-134166-2

No Detections.

Client Sample ID: GM-20D/072920/ — Lab Sample ID: 240-134166-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3.1		1.0	0.33	ug/L	1		8260B	Total/NA

Client Sample ID: GM-15/072920/ — Lab Sample ID: 240-134166-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethane	2.6		1.0	0.41	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	12		1.0	0.38	ug/L	1		8260B	Total/NA
trans-1,2-Dichloroethene	0.64	J	1.0	0.43	ug/L	1		8260B	Total/NA
Trichloroethene	4.5		1.0	0.36	ug/L	1		8260B	Total/NA
Vinyl chloride	0.56	J	1.0	0.50	ug/L	1		8260B	Total/NA

Client Sample ID: EB-03/072820/ — Lab Sample ID: 240-134166-5

No Detections.

Client Sample ID: TB-02/072920/ — Lab Sample ID: 240-134166-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: RMW-98/072820/
Date Collected: 07/28/20 16:25
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.55**	**J**	2.0	0.48	ug/L			08/11/20 09:27	2
1,1-Dichloroethane	2.0	U	2.0	0.81	ug/L			08/11/20 09:27	2
1,1-Dichloroethene	2.0	U	2.0	0.92	ug/L			08/11/20 09:27	2
Benzene	2.0	U	2.0	0.77	ug/L			08/11/20 09:27	2
cis-1,2-Dichloroethene	2.0	U	2.0	0.76	ug/L			08/11/20 09:27	2
Ethylbenzene	2.0	U	2.0	0.78	ug/L			08/11/20 09:27	2
Tetrachloroethene	**42**		2.0	0.65	ug/L			08/11/20 09:27	2
Toluene	2.0	U	2.0	0.69	ug/L			08/11/20 09:27	2
trans-1,2-Dichloroethene	2.0	U	2.0	0.87	ug/L			08/11/20 09:27	2
Trichloroethene	2.0	U	2.0	0.72	ug/L			08/11/20 09:27	2
Vinyl chloride	2.0	U	2.0	0.99	ug/L			08/11/20 09:27	2
Xylenes, Total	4.0	U	4.0	0.85	ug/L			08/11/20 09:27	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 09:27*	*2*
4-Bromofluorobenzene (Surr)	*75*		*47 - 134*		*08/11/20 09:27*	*2*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/11/20 09:27*	*2*
Toluene-d8 (Surr)	*94*		*69 - 122*		*08/11/20 09:27*	*2*

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: EB-04/072820/
Date Collected: 07/28/20 16:55
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 01:51	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 01:51	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 01:51	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 01:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 01:51	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 01:51	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 01:51	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 01:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 01:51	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 01:51	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 01:51	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 01:51*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 01:51*	*1*
Dibromofluoromethane (Surr)	*95*		*78 - 129*		*08/11/20 01:51*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 01:51*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: GM-20D/072920/
Date Collected: 07/29/20 14:30
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 02:13	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 02:13	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 02:13	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 02:13	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 02:13	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 02:13	1
Tetrachloroethene	**3.1**		1.0	0.33	ug/L			08/11/20 02:13	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 02:13	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 02:13	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 02:13	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 02:13	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 02:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 130*		*08/11/20 02:13*	*1*
4-Bromofluorobenzene (Surr)	*77*		*47 - 134*		*08/11/20 02:13*	*1*
Dibromofluoromethane (Surr)	*93*		*78 - 129*		*08/11/20 02:13*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 02:13*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: GM-15/072920/
Date Collected: 07/29/20 15:25
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 02:35	1
1,1-Dichloroethane	**2.6**		1.0	0.41	ug/L			08/11/20 02:35	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 02:35	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 02:35	1
cis-1,2-Dichloroethene	**12**		1.0	0.38	ug/L			08/11/20 02:35	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 02:35	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 02:35	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 02:35	1
trans-1,2-Dichloroethene	**0.64**	**J**	1.0	0.43	ug/L			08/11/20 02:35	1
Trichloroethene	**4.5**		1.0	0.36	ug/L			08/11/20 02:35	1
Vinyl chloride	**0.56**	**J**	1.0	0.50	ug/L			08/11/20 02:35	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 02:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*75 - 130*		*08/11/20 02:35*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 02:35*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 02:35*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 02:35*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: EB-03/072820/
Date Collected: 07/28/20 16:40
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 02:56	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 02:56	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 02:56	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 02:56	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 02:56	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 02:56	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 02:56	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 02:56	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 02:56	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 02:56	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 02:56	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 130*		*08/11/20 02:56*	*1*
4-Bromofluorobenzene (Surr)	*80*		*47 - 134*		*08/11/20 02:56*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 02:56*	*1*
Toluene-d8 (Surr)	*95*		*69 - 122*		*08/11/20 02:56*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Client Sample ID: TB-02/072920/
Date Collected: 07/29/20 00:00
Date Received: 07/30/20 08:00

Lab Sample ID: 240-134166-6
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 03:18	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 03:18	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 03:18	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 03:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 03:18	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 03:18	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 03:18	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 03:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 03:18	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 03:18	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 03:18	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*75 - 130*		*08/11/20 03:18*	*1*
4-Bromofluorobenzene (Surr)	*78*		*47 - 134*		*08/11/20 03:18*	*1*
Dibromofluoromethane (Surr)	*92*		*78 - 129*		*08/11/20 03:18*	*1*
Toluene-d8 (Surr)	*96*		*69 - 122*		*08/11/20 03:18*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(75-130)	(47-134)	(78-129)	(69-122)
240-134166-1	RMW-98/072820/	108	75	91	94
240-134166-2	EB-04/072820/	108	77	95	97
240-134166-3	GM-20D/072920/	107	77	93	97
240-134166-4	GM-15/072920/	108	78	92	96
240-134166-5	EB-03/072820/	105	80	92	95
240-134166-6	TB-02/072920/	111	78	92	96
LCS 240-446441/4	Lab Control Sample	98	96	89	102
MB 240-446441/7	Method Blank	106	81	91	97

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-446441/7
Matrix: Water
Analysis Batch: 446441

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			08/11/20 00:46	1
1,1-Dichloroethane	1.0	U	1.0	0.41	ug/L			08/11/20 00:46	1
1,1-Dichloroethene	1.0	U	1.0	0.46	ug/L			08/11/20 00:46	1
Benzene	1.0	U	1.0	0.38	ug/L			08/11/20 00:46	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.38	ug/L			08/11/20 00:46	1
Ethylbenzene	1.0	U	1.0	0.39	ug/L			08/11/20 00:46	1
Tetrachloroethene	1.0	U	1.0	0.33	ug/L			08/11/20 00:46	1
Toluene	1.0	U	1.0	0.35	ug/L			08/11/20 00:46	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.43	ug/L			08/11/20 00:46	1
Trichloroethene	1.0	U	1.0	0.36	ug/L			08/11/20 00:46	1
Vinyl chloride	1.0	U	1.0	0.50	ug/L			08/11/20 00:46	1
Xylenes, Total	2.0	U	2.0	0.42	ug/L			08/11/20 00:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 130*		*08/11/20 00:46*	*1*
4-Bromofluorobenzene (Surr)	*81*		*47 - 134*		*08/11/20 00:46*	*1*
Dibromofluoromethane (Surr)	*91*		*78 - 129*		*08/11/20 00:46*	*1*
Toluene-d8 (Surr)	*97*		*69 - 122*		*08/11/20 00:46*	*1*

Lab Sample ID: LCS 240-446441/4
Matrix: Water
Analysis Batch: 446441

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	8.72		ug/L		87	65 - 141
1,1-Dichloroethane	10.0	9.79		ug/L		98	74 - 126
1,1-Dichloroethene	10.0	9.65		ug/L		97	73 - 129
Benzene	10.0	10.5		ug/L		105	77 - 123
cis-1,2-Dichloroethene	10.0	10.0		ug/L		100	75 - 124
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120
m-Xylene & p-Xylene	10.0	10.0		ug/L		100	79 - 121
o-Xylene	10.0	9.97		ug/L		100	75 - 123
Tetrachloroethene	10.0	10.2		ug/L		102	70 - 125
Toluene	10.0	10.6		ug/L		106	79 - 122
trans-1,2-Dichloroethene	10.0	9.53		ug/L		95	74 - 130
Trichloroethene	10.0	9.12		ug/L		91	71 - 121
Vinyl chloride	10.0	10.2		ug/L		102	61 - 134
Xylenes, Total	20.0	20.0		ug/L		100	78 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 130*
4-Bromofluorobenzene (Surr)	*96*		*47 - 134*
Dibromofluoromethane (Surr)	*89*		*78 - 129*
Toluene-d8 (Surr)	*102*		*69 - 122*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Racer Moraine Annual

Job ID: 240-134166-1

GC/MS VOA

Analysis Batch: 446441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-134166-1	RMW-98/072820/	Total/NA	Water	8260B	
240-134166-2	EB-04/072820/	Total/NA	Water	8260B	
240-134166-3	GM-20D/072920/	Total/NA	Water	8260B	
240-134166-4	GM-15/072920/	Total/NA	Water	8260B	
240-134166-5	EB-03/072820/	Total/NA	Water	8260B	
240-134166-6	TB-02/072920/	Total/NA	Water	8260B	
MB 240-446441/7	Method Blank	Total/NA	Water	8260B	
LCS 240-446441/4	Lab Control Sample	Total/NA	Water	8260B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 240-134166-1
Project/Site: Racer Moraine Annual

Client Sample ID: RMW-98/072820/
Lab Sample ID: 240-134166-1
Date Collected: 07/28/20 16:25
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	446441	08/11/20 09:27	LEE	TAL CAN

Client Sample ID: EB-04/072820/
Lab Sample ID: 240-134166-2
Date Collected: 07/28/20 16:55
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 01:51	LEE	TAL CAN

Client Sample ID: GM-20D/072920/
Lab Sample ID: 240-134166-3
Date Collected: 07/29/20 14:30
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 02:13	LEE	TAL CAN

Client Sample ID: GM-15/072920/
Lab Sample ID: 240-134166-4
Date Collected: 07/29/20 15:25
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 02:35	LEE	TAL CAN

Client Sample ID: EB-03/072820/
Lab Sample ID: 240-134166-5
Date Collected: 07/28/20 16:40
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 02:56	LEE	TAL CAN

Client Sample ID: TB-02/072920/
Lab Sample ID: 240-134166-6
Date Collected: 07/29/20 00:00
Matrix: Water
Date Received: 07/30/20 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	446441	08/11/20 03:18	LEE	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Job ID: 240-134166-1
Project/Site: Racer Moraine Annual

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20 *
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

U-311-2

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: D. Gossett, Lt. Smith	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-73680-29720.4
Client Contact: Carolyn Grogan	Phone: 651-246-9673	E-Mail: Michael.DelMonico@Eurofinset.com		Page: 1 of 1 ~~Page 4 of 9~~ PC
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 100 E. Campus View Blvd Suite 200	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Columbus	TAT Requested (days): Standard			
State, Zip: OH, 43235				
Phone:	PO #: 30042873.0004B			Other:
Email: carolyn.grogan@arcadis.com	WO #:			
Project Name: Racer Moraine Annual	Project #: 24006917			
Site: RACER Moraine	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - TCL OLM03.1/4.2 Volatile Analyte List	9060 - TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	S		
RMW-4S/072820	7/28/20	1625	G	Water	N	N	X		3	
EB-04/072820/	7/28/20	1655	G	Water	N	N	X		3	
GM-20D/072920/	7/29/20	1430	G	Water	N	N	X		3	
GM-15/072920/	7/29/20	1525	G	Water	N	N	X		3	
~~DUP~~ EB-03/072820/	7/28/20	1640	G	Water	N	N	X		3	
TB-02/072920/	7/29/20	-	G	Water	N	N	X		2	
				Water						
				Water						
				Water						
				Water						
				Water						

240-134166 Chain of Custody

210 Dayton

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/29/20 1615	Arcadis		7-29-2020 1615	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time: 7-29-2020 1630	Company ETA	Received by:	Date/Time: 7-30-20 800	Company ETA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 240-134766

Client Arcadis Site Name

Cooler Received on 7-30-20 Opened on 7-30-20

Cooler unpacked by:

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 1 Foam Box Client Cooler Box Other

Packing material used: ~~Bubble Wrap~~ Foam ~~Plastic Bag~~ None Other

COOLANT: ~~Wet Ice~~ Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-10 (CF **+0.7** °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

IR GUN #IR-11 (CF **+0.9**°C) Observed Cooler Temp. 0.3 °C Corrected Cooler Temp. 1.2 °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ~~Yes~~ No
   - -Were the seals on the outside of the cooler(s) signed & dated? ~~Yes~~ No NA
   - -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes ~~No~~
   - -Were tamper/custody seals intact and uncompromised? ~~Yes~~ No NA
3. Shippers' packing slip attached to the cooler(s)? ~~Yes~~ No
4. Did custody papers accompany the sample(s)? ~~Yes~~ No
5. Were the custody papers relinquished & signed in the appropriate place? ~~Yes~~ No
6. Was/were the person(s) who collected the samples clearly identified on the COC? ~~Yes~~ No
7. Did all bottles arrive in good condition (Unbroken)? ~~Yes~~ No
8. Could all bottle labels be reconciled with the COC? ~~Yes~~ No
9. Were correct bottle(s) used for the test(s) indicated? ~~Yes~~ No
10. Sufficient quantity received to perform indicated analyses? ~~Yes~~ No
11. Are these work share samples? Yes ~~No~~

   If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No ~~NA~~ pH Strip Lot# HC911298
13. Were VOAs on the COC? ~~Yes~~ No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes ~~No~~ NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes ~~No~~

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.

Sample(s) were received in a broken container.

Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

WI-NC-099

Appendix F

DN-13 Pumping Well Operation and Maintenance

Appendix F
DN-13 Pumping Well
Operation and Maintenance

DN-13 Operation and Maintenance

Background

Extraction well DN-13 is a lower aquifer extraction well that is owned by Montgomery County and operated by Montgomery County and Revitalizing Auto Communities Environmental Response Trust (RACER Trust). Extraction well DN-13 was part of the former Greater Moraine Water System located in the North Dryden Road well field. The well has been used in a Pump-to-Waste Program since March 1990 in cooperation with former General Motors Corporation and Motors Liquidation Company until March 31, 2011 and has continued operation since that time in cooperation with the RACER Trust.

The interim measure for the lower aquifer at the Site consists of continued pumping of extraction well DN-13 to capture impacted groundwater. The outfall for DN-13 discharges to the Great Miami River and, as required by the NPDES permit regulated by the Ohio EPA, monthly sampling is performed at the outfall to monitor water quality along with the discharge flow rate collected at the well head. Additional information regarding DN-13 capture can be found in Section 3.2 of the 2020 Groundwater Monitoring Report (Report).

Per the operation and maintenance (O&M) plan, defined in the Extraction Well DN-13 Operation and Maintenance Memorandum (Arcadis, Inc. 2015a) and the RACER Trust Moraine Facilities: Extraction well DN-13 Operation and Maintenance Status (Arcadis, Inc. 2015b), data collected monthly since April 2015 is used to evaluate and maintain the performance of extraction well DN-13 and includes the following:

1. Date and time of measurements
2. Electric motor power consumption
3. Flow meter readings (totalizer)
4. Flow control valve setting
5. Wellhead pressure
6. Water-level measurements including both manual depth-to-water measurements during pumping and high frequency water-level data from the pressure transducers deployed in well DN-13 and monitoring well GM-14 (up-gradient).

The objective of the data collection and subsequent analysis is to recognize, in a timely manner, indications of deteriorating pump/motor and/or fouling/encrustation of the well screen through evaluation of specific performance criteria that will prompt appropriate action.

Data was analyzed and summarized in quarterly progress reports submitted to the United State Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (Ohio EPA). As outlined in the RACER Trust Moraine Facilities: Extraction Well DN-13 Operation and Maintenance Status (Arcadis, Inc. 2015b), Arcadis indicated the following items would be reported in the Annual Site-Wide Groundwater Monitoring Report:

- An annual data summary
- Corresponding figures and tables

- An evaluation and recommendations regarding future data collection and/or corrective actions
- Documentation of O&M activities/actions performed during the reporting year

As part of this annual performance summary, extraction well DN-13 groundwater elevation data are shown graphically on **Figure F-1**, and specific capacity (SC) and average monthly flow rate data are shown on **Figure F-2**. Annual average flow rate data for the year is summarized in Section 3.2 of the Report.

As part of the quarterly evaluations in 2020, minimal corrective actions were prompted, and they are summarized below:

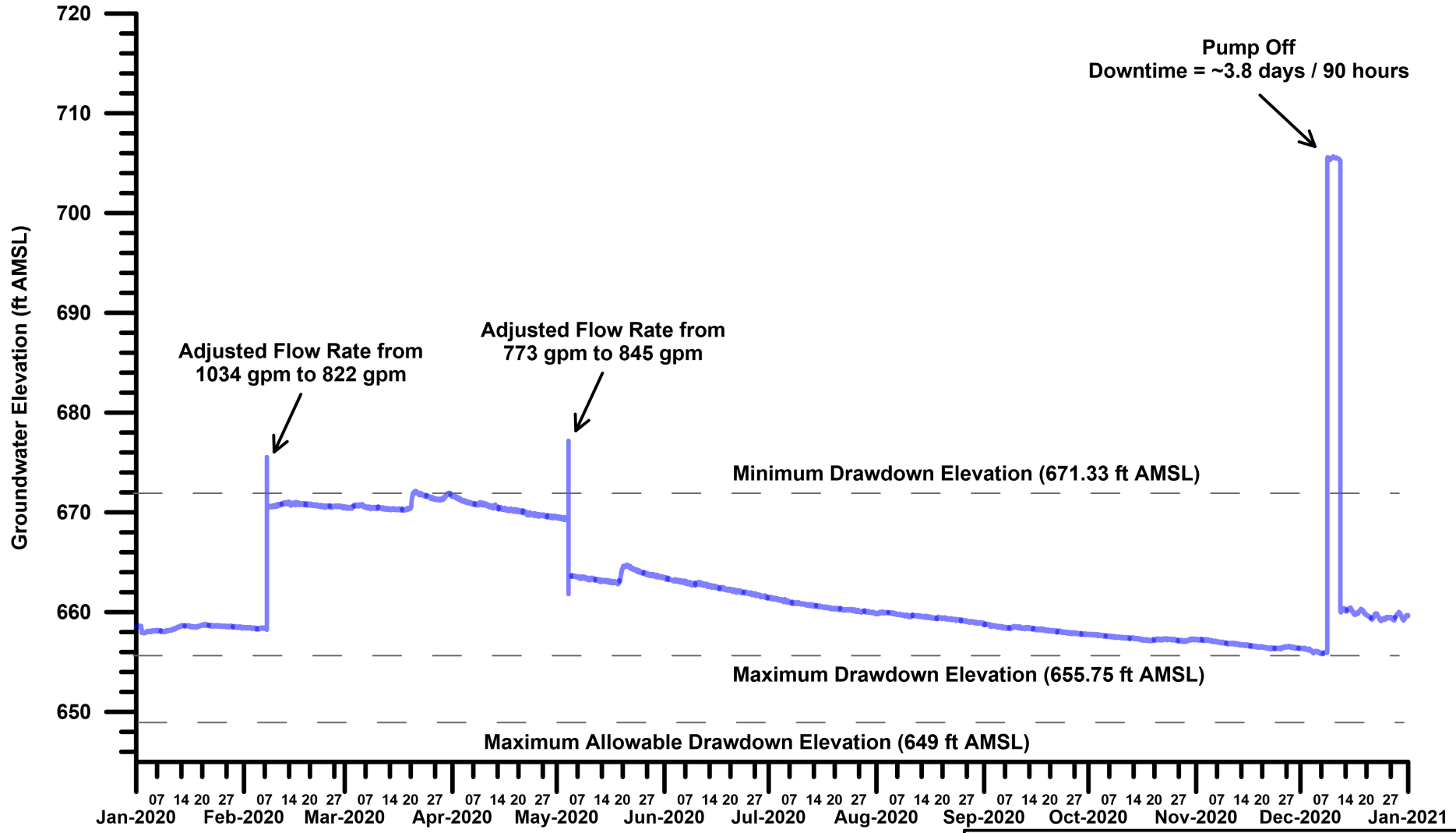
- **First Quarter**: Extraction well DN-13 was operational for 100 percent (%) of the quarter. The flow rate for DN-13 was reduced to approximately 800 gallons per minute (gpm) to increase the available drawdown in the well.
- **Second Quarter**: Extraction well DN-13 was operational for 100% of the quarter. On May 4, 2020, the flow rate was adjusted to to approximately 845 gpm to optimize flow based on drawdown measurements.
- **Third Quarter**: Extraction well DN-13 was operational for 100% of the quarter. The SC and the groundwater elevation steadily decreased.
- **Fourth Quarter**: Extraction well DN-13 was operational for 95.9% of the quarter. Extraction well DN-13 was off due to a likely power outage for 3.75 days between December 8 and 12, 2020. The 2020 maximum drawdown elevation at extraction well DN-13 was reached on December 8, 2020. The maximum drawdown elevation for 2020 was 655.75 ft amsl, 6.75 ft higher than the maximum allowable drawdown elevation (649 ft amsl). The groundwater elevation in extraction well DN-13 increased approximately 4 feet once adjustments were completed on December 12, 2020.

Monitoring, flow rate adjustments, and necessary maintenance will continue in 2021 to ensure appropriate DN-13 operation for lower aquifer capture. In addition, monitoring of the operation parameters of DN-13 and the surrounding groundwater quality will continue, to determine the future necessity of DN-13 as a capture well.

References

Arcadis, Inc. 2015a. Extraction Well DN-13 Operation and Maintenance Memorandum, RACER Trust, Moraine, Ohio. April 8, 2015.

Arcadis, Inc. 2015b. RACER Trust Moraine Facilities: Extraction Well DN-13 Operation and Maintenance Status, RACER Trust, Moraine, Ohio. September 24, 2015.



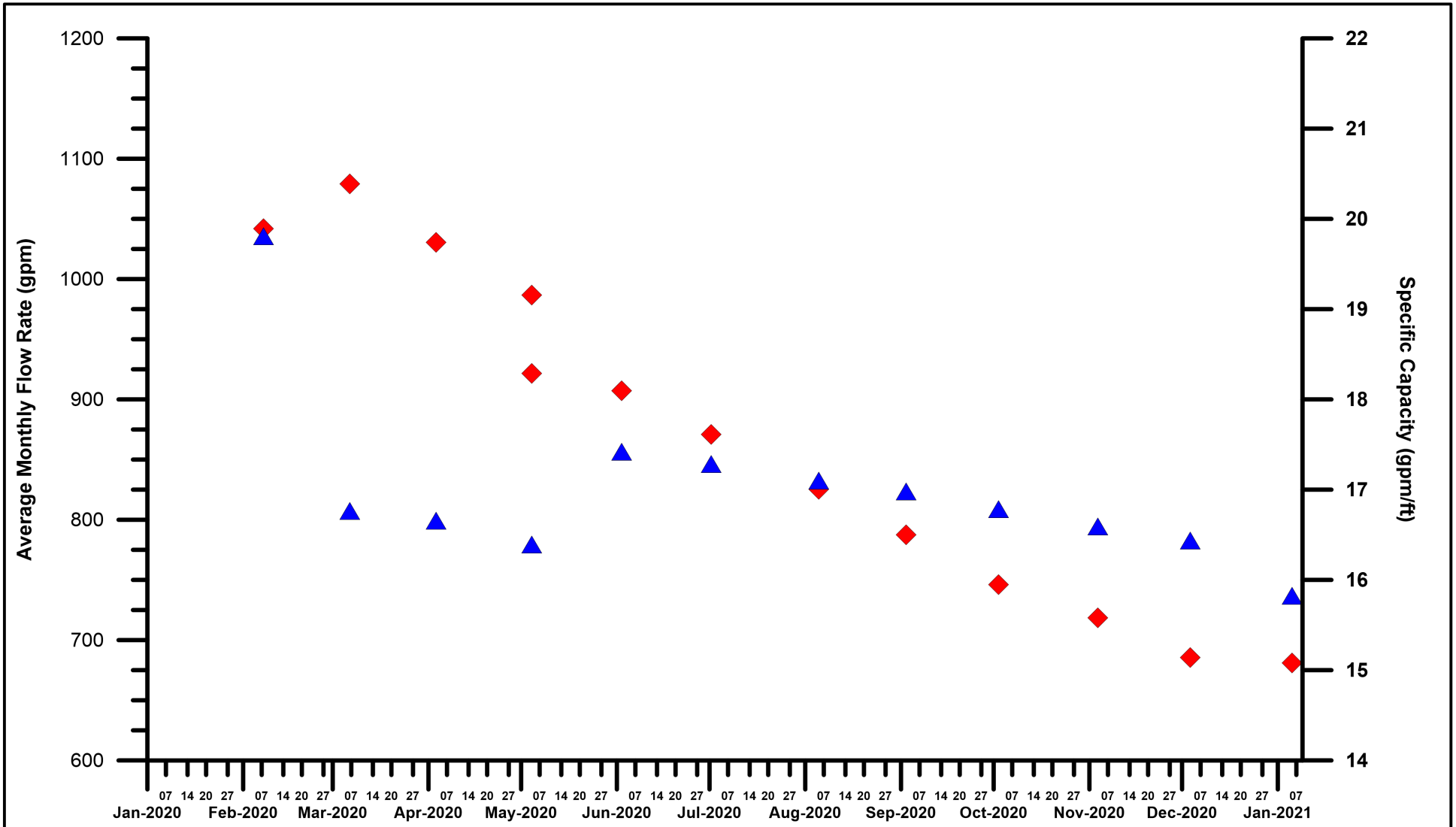
Note: DN-13 Screen Elevation from 619 to 559 feet AMSL

RACER TRUST
MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

DN-13
OPERATION DATA
WATER-LEVEL ELEVATION

ARCADIS

FIGURE
F-1



DN-13 Flow Rate and Specific Capacity

- Specific Capacity (gpm/ft)
- Average Monthly Flow Rate (gpm)

Notes:
1. Specific Capacity in gallons per minute per foot (gpm/ft)
2. Flow Rate in gallons per minute (gpm)
3. Measurements are taken near the end or beginning of each reporting month

RACER TRUST
MORAINE, OHIO
2020 GROUNDWATER MONITORING REPORT

DN-13 OPERATION DATA FLOW RATE AND SPECIFIC CAPACITY

ARCADIS

FIGURE
F-2

Appendix G

Phase 1 DGR™ Operation, Maintenance, and Performance

Appendix G

Phase 1 DGR™
Performance Results

Phase 1 DGR™ System Summary

As detailed in the 2020 Groundwater Monitoring Report (Report), Phase 1 Dynamic Groundwater Recirculation (DGR™) system operation began on October 28, 2019. Baseline groundwater samples and hydraulic information were collected during the July 2019 groundwater monitoring event. Performance monitoring groundwater sampling and operation and maintenance (O&M) activities were completed throughout 2020 and are summarized below.

O&M

Phase 1 DGR™ system data (i.e., flow rates, water-levels, and influent/mid-treatment site-specific volatile organic compound [VOC] sampling) were collected throughout 2020. The Phase 1 DGR™ system well locations consist of extraction wells EW-1, EW-2, and EW-3 and injection wells IW-1, IW-2, IW-3, and IW-4 and are shown on **Figure G-1**.

For the duration of 2020, there were approximately 24 to 65 days of downtime by system, due to maintenance activities. These activities included system mechanical repairs, port repairs, carbon filtration vessel media replacement, and bag filter replacements. There was additional downtime for the following:

- Re-development activities at extraction well EW-3 and injection well IW-4 in April (1 day), May (3 days), and from June 9, 2020 through July 17, 2020.
- Troubleshooting mechanical issues with the pitless adapter at extraction well EW-3 from December 14 through 31, 2020. Since injection well IW-4 is used to inject treated groundwater from extraction well EW-3, injection well IW-4 was also off during this time.

Note that the other system wells were operational during these repairs.

Results from the typically bi-weekly influent and mid-point treatment system sampling analyzed for site-specific VOCs provides data for carbon media replacement. Based on the sample results, carbon was replaced in all three treatment systems from March 26, 2020 through March 31, 2020. Influent and mid-treatment system sampling to monitor breakthrough and evaluate the carbon change-out schedule will continue in 2021 on a monthly to bi-monthly basis, as needed.

Performance

The system average extraction flow rate for 2020 was approximately 253 gallons per minute (gpm) and accounts for downtime. The average system flow rate excluding the downtime periods was approximately 277 gpm. The flow rates and water levels calibrated to elevation (feet above mean sea level) for the extraction and injection wells were charted for January through December of 2020 and are shown on **Figures G-2** and **G-3**, respectively. Also charted are cumulative daily and monthly precipitation levels from Dayton Wright Brothers Airport. A detailed flow rate summary is provided below.

Appendix G

Phase 1 DGR™
Performance Results

	Average Flow Rate Including Downtime (gpm)	Average Flow Rate Excluding Downtime (gpm)
System Total	253	277
EW-1	92	98
EW-2	93	99
EW-3	68	79
IW-1	46	49
IW-2	46	49
IW-3	93	99
IW-4	68	79

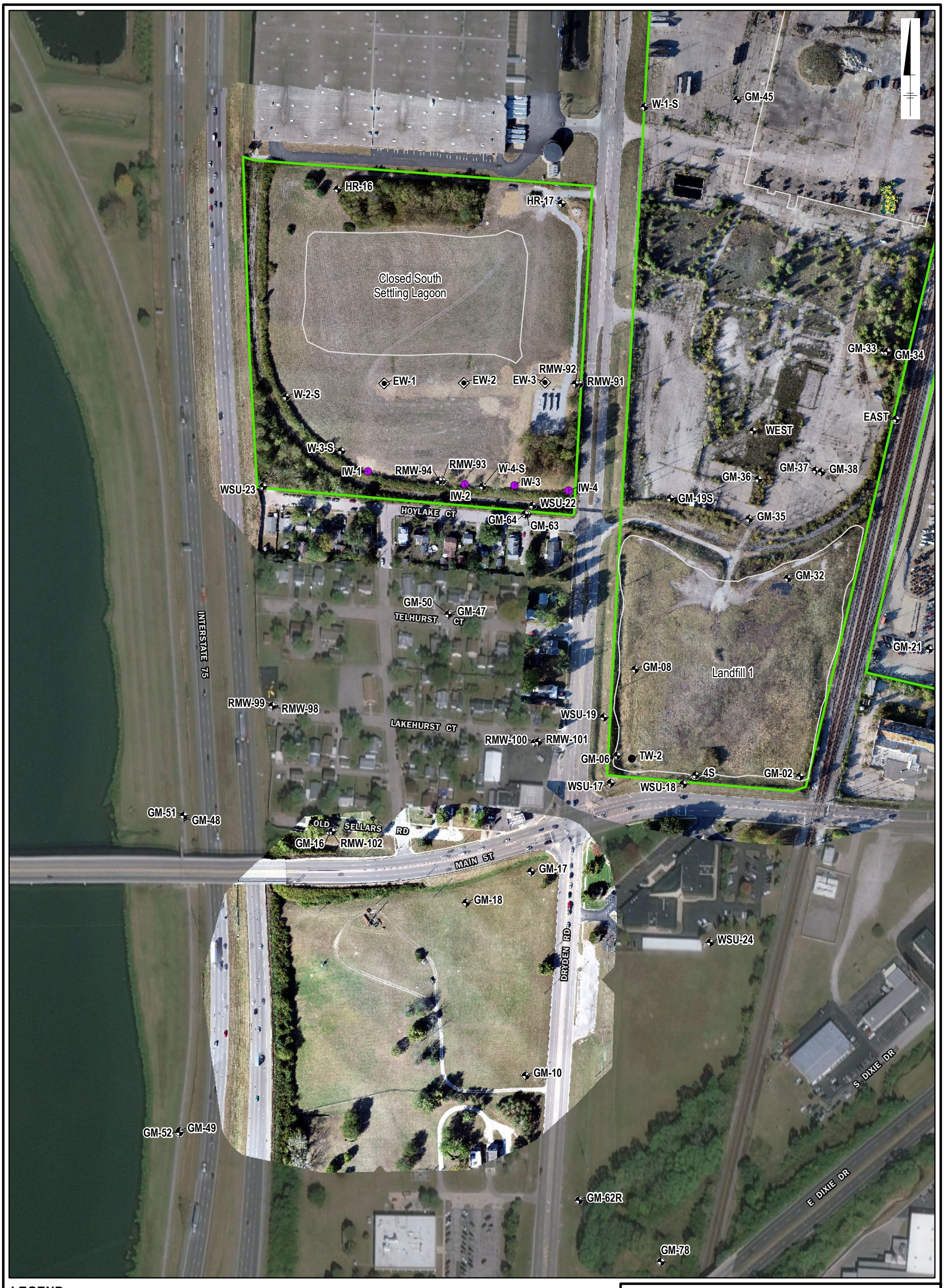
The flow rates for all extraction wells and injection wells are performing as expected (**Figures G-2** and **G-3**). The re-development of extraction well EW-3 and injection well IW-4 (second quarter) resulted in increased performance to approximately 99 gpm during fourth quarter. Groundwater levels in the vicinity of the injection wells indicate minimal mounding as demonstrated during initial startup and continual groundwater level monitoring with minor increases of less than 0.5 feet in groundwater elevation at GM-63, which is located just downgradient of the injection wells and upgradient of the Riverview Plat neighborhood (**Figures G-1** and **G-3**).

The system average injection flow rate for the first quarter of 2020 is inverse to the extraction flow rates. The system is designed to divert flow from extraction well EW-1 to be evenly divided between both injection wells IW-1 and IW-2, and the flow from extraction wells EW-2 and EW-3 is directly tied to injection wells IW-3 and IW-4, respectively. The performance data for the injection wells was charted from continuous data collected and is presented on **Figure G-3**. As with the extraction wells, hydrographs for the groundwater elevation within the injection wells is provided on the main y-axis and were calibrated to manual groundwater elevations to a known survey point. Flow rate and injectability (flow rate divided by mounding) is provided on secondary y-axes. The specific capacity and injectability for the system wells are operating within the design criteria.

Conclusions

The Phase 1 DGR™ system is performing as designed. System samples will continue to be collected throughout 2021 on a bi-weekly to monthly basis as needed to monitor breakthrough and evaluate the carbon change-out schedule. Flow rates and water levels will continue to be collected throughout 2021 to monitor system performance. Groundwater samples will be collected on a semi-annual basis in 2021 to confirm and verify system performance. Continued data collection will be evaluated and reported in forthcoming Semi-Annual Progress Reports and annual Groundwater Monitoring Reports.

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C:\Users\jchen\OneDrive - ARCADIS\Documents_PROJECT\RACER_MORAINE\GIS\ArcMaps\2020_GW_MonitoringReport\FigG-1_Phase1 DGR Site Area.mxd 02/15/2021 11:14:34 AM



LEGEND

PHASE 1 DGR™ (UPPER AQUIFER)

- EXTRACTION WELL
- INJECTION WELL

UPPER AQUIFER

- UPPER AQUIFER WELL
- INACTIVE RECOVERY WELL
- FORMER BUILDING/SITE FEATURE
- PROPERTY BOUNDARY

0 250 500 Feet

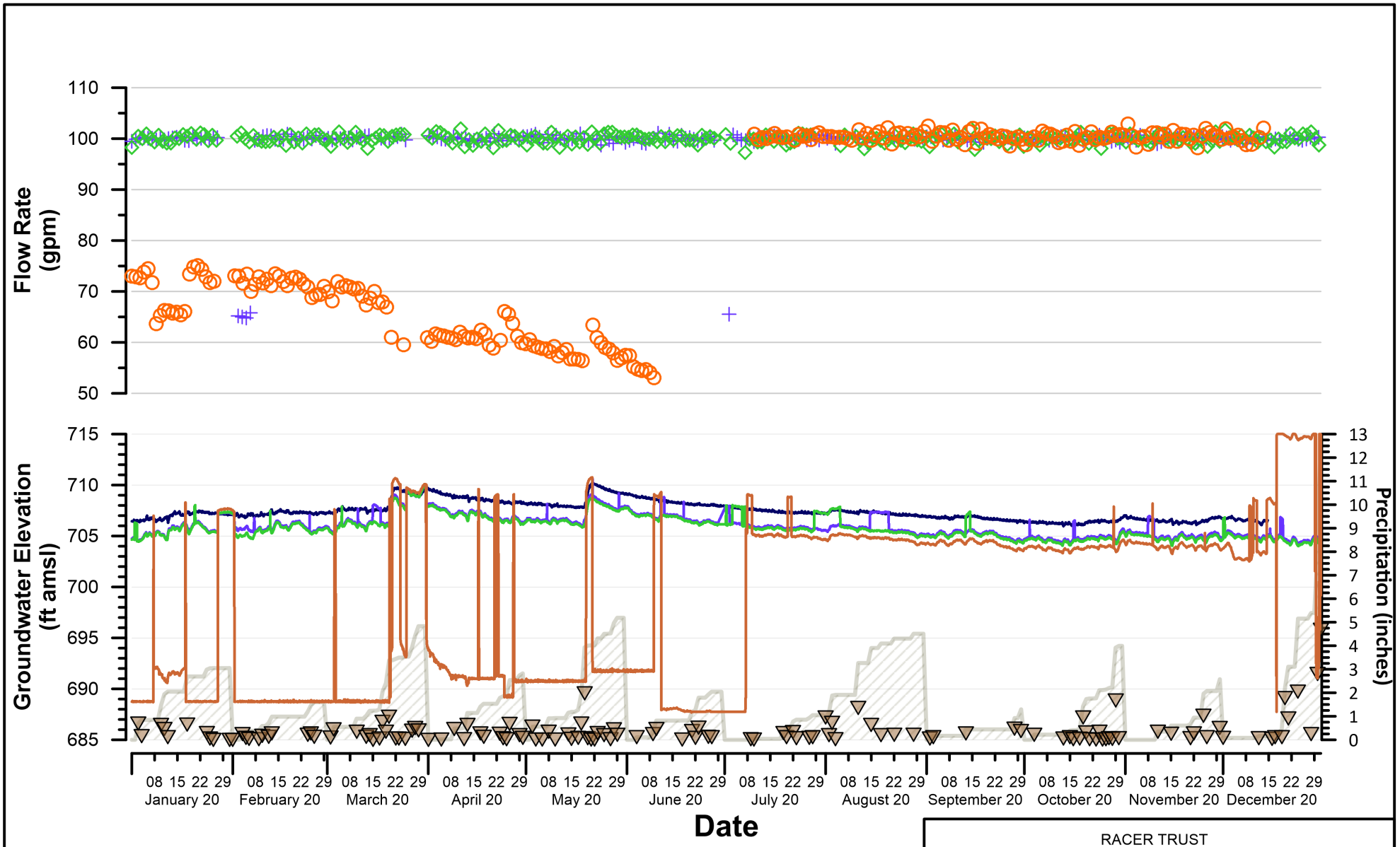
Notes:
1. High-resolution orthomosaic developed using imagery collected by Arcadis US via DJI Zenmuse X4S camera mounted to a DJI Inspire 2 UAV during the dates of 10/09/2019-10/10/2019.
2. Additional Aerial Source; DigitalGlobe, dated 8/22/2018, serviced by ESRI World Imagery Service, accessed via ESRI ArcGIS Desktop on 2/16/2021.

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PHASE 1 DGR™ SITE AREA

ARCADIS Design & Consultancy for natural and built assets

FIGURE G-1



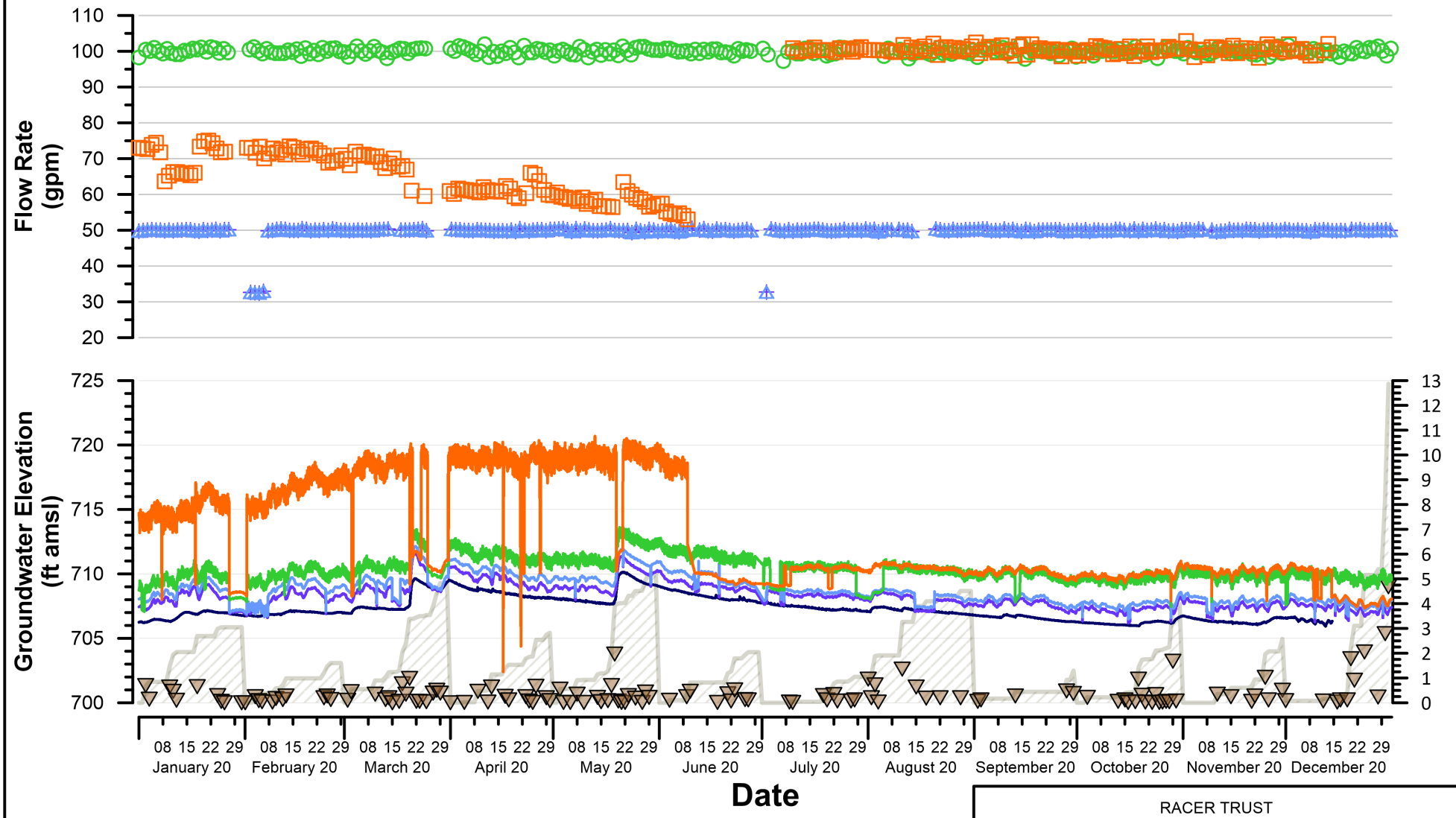
Notes:
gpm = gallons per minute
ft = feet
amsl = above mean sea level (NAVD88 datum)
Rainfall data collected from NOAA Online Climate Data for Dayton - Wright Brothers Airport

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Phase 1 DGR™
Extraction Well Performance

ARCADIS

FIGURE
G-2



Notes:
gpm = gallons per minute
ft = feet
amsl = above mean sea level (NAVD88 datum)
Rainfall data collected from NOAA Online Climate Data for Dayton - Wright Brothers Airport

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Phase 1 DGR™
Injection Well Performance

ARCADIS

FIGURE
G-3