RACER®
Revitalizing Auto Communities
Environmental Response Trust

February 27, 2018

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

RE: 2017 Groundwater Monitoring Report
RACER Trust Moraine Facilities
Moraine, Ohio

Dear Ms. Cápiro:

The Revitalizing Auto Communities Environmental Response Trust (RACER Trust) is providing this 2017 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 2017 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: Brian Gitzinger - Ohio EPA
Justin Lichter – IRG Realty Advisors, LLC
Beth Moore – Montgomery County
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Micah Siegal – Fuyao Asset Management A, LLC
Wright Warehousing
DMAX

Revitalizing Auto Communities Environmental Response Trust (RACER Trust)

2017 GROUNDWATER MONITORING REPORT

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 27, 2018

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1 INTRODUCTION

This 2017 Groundwater Monitoring Report presents the groundwater monitoring activities completed in 2017 at the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) (formerly General Motors Corporation [former GM Corporation]) facilities 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 addresses the 2017 groundwater monitoring program (Table 1) and the performance of the ongoing interim measures. 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 groundwater, Figure 3); the capture zone interim measure (pumping for the lower aquifer, Figure 3); institutional actions (the Site will remain industrial and groundwater use will be restricted); and a groundwater monitoring program.

The groundwater monitoring for the facilities was conducted in accordance with the Addendum to the Site-Wide Groundwater Monitoring Report for 2016 (Addendum; Arcadis Inc., 2017a). The purpose of the Addendum was to communicate a reduced scope of the groundwater monitoring program considering the sampling associated with Phase 1 Dynamic Groundwater Recirculation™ (DGR™) Interim Measure Pilot Test and the Primary Groundwater Source Area Interim Measures Pilot Test. This focused network prevented duplication of data collected within a relatively short time, reduced the cost associated with groundwater monitoring and associated reporting, while ensuring continued compliance for the Site. The 2017 results associated with the pilot tests will be included in forthcoming reports, as indicated in the respective work plans (Arcadis Inc., 2017b and 2017c).

Additional groundwater monitoring was completed in 2017 in accordance with the approved Focused Off-Site Groundwater Investigation Work Plan (Arcadis Inc., 2017d). The additional groundwater monitoring activities were completed to evaluate concentrations of site-specific volatile organic compounds (VOCs) in the shallow (upper) aquifer southwest of the Site, and the methods and results are summarized in this report.

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 located in the City of Moraine in Montgomery County in southwestern Ohio. A small portion of the Moraine Assembly facility is located 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 the majority 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. 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 of 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, 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. The closed South Settling Lagoon was not included in this property transaction. The closed South Settling Lagoon was retained by RACER Properties LLC.

On September 29, 2011, the Administrative Order on Consent (AOC) for the Moraine Site was fully executed proceeding under Section 3008(h) of the Resource Conservation and Recovery Act (RCRA), as amended, 42 United States Code (U.S.C.) Section 6928(h), United States Environmental Protection Agency (U.S. EPA) Docket No: RCRA-05-2011-0016. The performance–based AOC covers corrective action for past releases of hazardous contaminants at or from the Site.

IRG currently leases several portions of the Site for industrial purposes. IRG sold several portions of the property in 2014. Figure 2 provides details of the established parcels and current owners. Specifically, the following transactions were completed in 2014:

- Copart of Connecticut, Inc. (Copart) acquired Lot #5433 (Parcel IDs J44 26413 0015 and J44 26413 0016) on May 2, 2014. Copart currently utilizes this lot to store cars for online auctions.
- Fuyao Asset Management A, LLC (Fuyao) acquired Lots #1, #2, #5438 on May 15, 2014. Fuyao currently produces and stores Original Equipment Manufacturer (OEM) automotive glass at this facility.
- Inland Property Management, Inc. acquired Lot #5436 on May 13, 2014. This lot is currently occupied by RJ Trucking, Inc.

In 2017, the following additional transactions were completed:

- Wright Warehousing, Inc. acquired Lot #5459 on April 19, 2017. This lot is currently vacant.
- The State of Ohio acquired Lot #5460 on April 28, 2017. This lot is currently vacant, and the State of Ohio plans to construct a full-service Ohio Department of Transportation facility on the property in 2018.

No additional property transactions have occurred.

1.2 Groundwater Monitoring Program Objectives

The objectives of groundwater monitoring in 2017 at the former Moraine Facilities are as follows:

1. Monitor water table groundwater concentrations west of the Miami River near the Miami Shores neighborhood
2. Monitor the effectiveness of the lower aquifer capture (DN-13) downgradient of property boundary
3. Monitor the effectiveness of corrective measures activities in in-situ reactive zones RZ-1, RZ-3, and RZ-4 east
4. Monitor groundwater quality upgradient and downgradient of the closed North and South Settling Lagoons

1.3 Baseline Groundwater Monitoring Program Sampling Event

To provide a basis for evaluating the performance of the interim measures, a comprehensive site-wide groundwater sampling event for VOCs was completed in September 1999 to establish a baseline data set. The next site-wide groundwater sampling event was completed between September and October 2000. During the 2000 sampling event and at the request of the U.S. EPA, groundwater samples were analyzed for Appendix IX chlorinated VOCs and cis-1,2-dichloroethene (cis-1,2-DCE) by Method 8260, semi-volatile organic compounds (SVOCs) by Method 8270, and metals by Method 6010B to verify that current groundwater conditions were consistent with previous site conditions. The results of this one-time sampling event confirmed that chlorinated VOCs were the constituents of potential concern in groundwater at the Site. SVOCs were not detected and metals were not detected above levels of concern during the 2000 sampling event. The analytical results from the 1999 baseline event and the 2000 site-wide event are presented in the IM/CM Report (Arcadis G&M, Inc. 2001).

1.4 Interim Measures Description

1.4.1 In-Situ Reactive Zones

The reductive dechlorination of chlorinated VOCs can be enhanced by the introduction 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 tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-DCE, and vinyl chloride. This enhanced reductive dechlorination (ERD) process has been developed at the Site through the use of in-situ reactive zones for the introduction of a degradable carbon source necessary to develop the desired reducing conditions.

Enhanced reductive dechlorination was implemented in 1999 as a component of the Former Oil House Area interim measures at three in-situ reactive zones: 1) at the southern boundary of the Former Oil House Area (RZ-1); 2) at an intermediate downgradient location south of the Former Oil House Area in the ME well series area (RZ-2 which was operated from 1999 to 2002); and 3) at a downgradient location south of former Delphi Thermal Moraine (RZ-3 West) and the former Moraine Engine plant (RZ-3 East). Using the data obtained from the Supplemental Groundwater Investigation conducted in 2006, RZ-4 was designed and installed to address chlorinated VOC impacts identified west of RZ-3 West (GM-16). The in-situ reactive zone locations are shown on Figure 3. The actual layouts of each in-situ reactive zone are shown on Figures 4 and 5 and discussed below:

- At RZ-1, molasses solution is introduced into the upper aquifer, above the upper clay till. The carbon source solution injection wells are screened across the lower 10 feet (ft) of this portion of the upper aquifer, which is 4 ft to 12 ft thick. RZ-1 consists of 21 injection wells, of which 12 wells (RZ-1J through RZ-1U) were added in 2002 to expand RZ-1.
- Former RZ-2 consisted of four monitoring wells (ME-1 [abandoned], ME-2, ME-4, and ME-5 [abandoned]), located along the western edge of the former Moraine Engine Plant 3 building. The RZ-2 wells were screened within the upper 3 ft of the upper aquifer. RZ-2 was operated from 1999 to 2002.
- RZ-3 consists of 46 injection wells, 30 wells in RZ-3 West (RZ-3A through RZ-3DD) and 16 wells in RZ-3 East (RZ-3FF through RZ-3KK and RZ-3MM through RZ-3VV). At RZ-3, the injection wells are screened from the approximate upper aquifer water table to a depth of 46 ft to 68 ft below land surface (bls), to allow carbon source solution introduction to the lower 20 ft to 30 ft of the upper aquifer. Injection wells RZ-3RR through RZ-3VV were installed in April 2005 in order to establish a reactive zone further down-gradient and closer to the property boundary. The additional injection wells are screened from 34 ft to 54 ft bls. Injection wells RZ-3MM through RZ-3QQ have not been operated since the installation of RZ-3RR through RZ-3VV in 2005; therefore, of the 16 existing injection wells in RZ-3 East, 11 are active.
- RZ-4 consists of 15 injection wells, seven wells in RZ-4 West (RZ-4I through RZ-4O) and eight wells in RZ-4 East (RZ-4A through RZ-4H). These injection wells were installed in July 2006. The RZ-4 West injection wells are located in the southeast corner of the closed South Settling Lagoon and the

> RZ-4 East injection wells are located north of Landfill L1 and west of the Waste Pile/Staging Area. At RZ-4, the injection wells are screened approximately from the water table of the upper aquifer to a depth of 57 ft to 62 ft bls, to allow carbon source solution introduction to the lower 30 ft of the upper aquifer. Only RZ-4 East remains active.

To establish conditions conducive to ERD within in-situ reactive zones RZ-1, RZ-2, and RZ-3, a readily degradable carbon source (a dilute solution of molasses and potable water) was periodically delivered into the injection wells during a 6-month period from December 1999 to May 2000. The molasses solution consisted of either a 10-to-1 or 20-to-1 ratio of potable water to feed-grade molasses that was pumped into each injection well. The initial event, conducted in December 1999, consisted of two consecutive rounds of carbon source solution introductions in each in-situ reactive zone injection well. After the initial introduction event, the carbon source solution introductions were scheduled twice per month through May 2000. Due to the success during the first six months of implementing this technology, carbon source introduction activities continued in October, November, and December 2000 and subsequently from June 2001 through December 2017. Carbon source solution injection volumes in 2017 are summarized on Table 2.

Introductions in RZ-1 were modified in the fall of 2003 after review of the previous site-wide groundwater analytical results. Due to the success of RZ-1, reduced carbon loading was implemented at a frequency of one introduction event every other month. Monitoring well GM-28 was periodically sampled to verify that the necessary reducing conditions were being sustained to promote the reductive dechlorination process. In May 2005, the introduction routine was changed to two injections every quarter to maintain reducing conditions and provide sufficient carbon to allow for complete degradation of the chlorinated VOCs.

Monthly carbon source solution injections were completed in 2013 in in-situ reactive zones RZ-1, RZ-3, and RZ-4 East through August, with the exception of January, due to weather conditions. The frequency of substrate injections at in-situ reactive zones RZ-1, RZ-3, and RZ-4 East was modified starting in September 2013. This amended schedule included quarterly carbon source solution introductions based on the updated Conceptual Site Model (CSM), specifically transport velocities in the upper aquifer. The groundwater mass transport velocity was evaluated and refined as part of the 2012 CMP (Arcadis, Inc. 2012a) using data generated through operation of the injection program and the Pre-Design Investigation. The results of the evaluation indicated that the estimated mass transport velocity is approximately 0.25 feet per day (ft/day), which is slower than the estimates generated prior to initiation of the injections in 1999 (i.e., greater than 1 ft/day). Calculations were subsequently completed to evaluate the current injection frequency relative to the revised (lower) mass transport velocity. Specifically, the estimated time for the molasses solution to “wash out” of the in-situ reactive zone area through groundwater transport was estimated assuming a mass transport velocity of 0.25 ft/day. The results of these calculations indicated that molasses will wash out of the in-situ reactive zone area every 3 to 4 months.

During the initial period of the amended introduction schedule (quarterly), an evaluation was completed to confirm the estimated carbon source wash out rate and to confirm that the interim measure remained effective. This evaluation consisted of baseline sampling and a 3 month discontinuation of carbon source introductions from December 2013 through February 2014 to provide data for the establishment of organic carbon degradation trends. The organic carbon degradation trends were subsequently used to confirm the theoretical quarterly wash out rate.

To support the injection frequency evaluation, groundwater samples were collected from in-situ reactive zone wells RZ-1E, RZ-3D, RZ-3S, RZ-3TT, and RZ-4E for the analysis of total organic carbon (TOC). Baseline groundwater grab samples for TOC were collected on December 11, 2013, immediately following completion of the November 2013 injection in these wells. Grab groundwater samples for TOC then were collected from the same five in-situ reactive zone wells in January and February 2014. In addition, groundwater samples were collected for the analysis of TOC, methane, ethene, ethane, and VOCs from monitoring wells GM-19S, GM-21, and GM-32 during the site-wide annual groundwater monitoring event in October 2014.

TOC generally decreases on a first-order relationship. As such, first order decay rate constants were calculated and used to estimate/extrapolate when it is expected that concentrations will reach 20 milligrams per liter (mg/L) at each carbon source solution injection location and on a site-wide/average basis. Twenty mg/L is the optimal concentration that typically results in sufficient excess organic carbon to drive ERD within the in-situ reactive zone area. Ultimately, these calculations were used to document the proposed revised injection frequency.

A summary of the TOC analytical results collected during the evaluation period is provided in Appendix A. Using these data, a unique degradation half-life (k-value [day^{-1}]) was calculated for each of the sampled injection wells (RZ-3D, RZ-3S, RZ-3TT, RZ-1E, and RZ-4E). The hydraulic conductivity estimates provided in the 2012 CMP (Arcadis, Inc. 2012a) were then used to calculate the time it would take the TOC levels to drop to 20 mg/L starting from the day of the injection event. A summary of the half-life analysis is provided in Appendix A. As shown on Table A-10 the calculated required injection frequency ranges from approximately 6 to 13 months with an average of approximately 9 months.

The organic carbon degradation trend evaluation confirmed the revised site model and that a reduced injection frequency was warranted at the Site. As a conservative initial step, the injection frequency was reduced to quarterly (e.g., as opposed to every 6 to 13 months). In addition, monitoring data collected from GM-19S, GM-21, and GM-32 during the site-wide annual sampling event in October 2014 confirmed that the ERD process has not been adversely affected as a result of the revised injection frequency. Specifically, methane, ethane, ethene, and chlorinated VOC analytical data were consistent with historic data as discussed in Appendix A. Additional injection frequency reductions may be evaluated and recommended at a future time based on the results presented herein and future performance monitoring data.

1.4.2 Capture Zones

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 consists of continued pumping of DN-13 in 2017. Samples at the DN-13 invert outfall, samples from the wellhead sampling port , and well flow rate data are collected on a monthly basis as a requirement of the National Pollutant Discharge Elimination System (NPDES) permit and is submitted to the Ohio Environmental Protection Agency (Ohio EPA). Well DN-13 was operational throughout 2017 except for the periodic shutdowns related to power failures and for operation and maintenance activities. Details on well DN-13 operation and 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

In accordance with the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002), annual groundwater sampling was completed from 2001 through 2016. As stated above, the 2017 annual groundwater monitoring was completed in accordance with the Addendum (Arcadis Inc. 2017a). The 1999 baseline through 2016 groundwater quality data for the site-specific VOC parameter list are reproduced in tables in Appendix B. For 2017, the site-specific VOC groundwater data is summarized in Table 3 of this report. This information is used to assess the effectiveness of the on-going interim measures (in-situ reactive zones and capture zone), monitoring the closed settling lagoons, and monitoring water table concentrations near the Miami Shores neighborhood. A summary of the activities and methodologies completed in 2017 is presented in Section 2.1, and the groundwater monitoring results are presented in Section 2.2.

2.1 Groundwater Monitoring Activities/Methodologies

To meet the objectives of the groundwater monitoring program, the scope of work presented in Section 3.0 of the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002), the Addendum (Arcadis Inc., 2017a), and the Focused Off-Site Groundwater Investigation Work Plan (Arcadis Inc., 2017d) was implemented during 2017. The following sections summarize well installation methods, collection of the annual groundwater elevation measurements, monthly groundwater recovery system monitoring, and groundwater monitoring.

2.1.1 Focused Off-Site Groundwater Investigation

Three monitoring wells were installed between the Miami Shores neighborhood and the west bank of the Great Miami River to evaluate off-site shallow groundwater concentrations at the water table (upper aquifer). From July 24 to August 2, 2017, Arcadis completed utility clearance, drilling, well installation and development, and groundwater monitoring activities associated with the Focused Off-Site Groundwater Investigation Work Plan (Arcadis Inc., 2017d). The following sections summarize the methodologies associated with this work.

2.1.1.1 Utility Clearance

Arcadis completed installation of three soil borings that were converted to monitoring wells (RMW-95, RMW-96, and RMW-97). Drilling services were provided by EnviroCore, Ltd. of Plain City, Ohio, and utility locating services were provided by The Underground Detective of Cincinnati, Ohio. Prior to the drilling activities, underground utilities were cleared and the locations were surveyed for overhead utilities. Arcadis contacted the Ohio Utility Protection Service, used employee knowledge, completed a detailed visual site inspection, and cleared borings using ground penetrating radar, electromagnetic scanning techniques, and hand augering to depths of approximately 6 ft below ground surface (bgs). The soil boring / monitoring well locations are shown on Figure 3.

2.1.1.2 Drilling and Well Installation Activities

The monitoring wells were installed using the hollow stem auger drilling methodology and constructed with 2-inch-diameter polyvinyl chloride (PVC) risers and 15 feet of 0.01-inch slotted PVC screen that bridged the water table. A clean washed-silica sand filter pack was placed in the annular space around the well screen and casing from the base of the screen to at least 2 feet above the screen. A minimum of a 2-feet of bentonite pellets were placed above the sand pack of each well. The annulus within each well was then sealed by hydrating the bentonite and allowing the bentonite to set for approximately 30 minutes. The remaining portion of the boring was grouted with Portland cement and bentonite grout mixture. The PVC risers were cut approximately 0.5 foot bgs and finished with a locking protective flush-mount steel cover set in concrete. The monitoring wells were then developed by surging and purging. The ground elevation and the top-of-casing measuring point for the monitoring wells were surveyed by a licensed professional. The soil boring logs, well construction diagrams, and Miami Conservancy District Permit are provided in Appendix C.

2.1.1.3 Groundwater Monitoring

Following well installation and development, groundwater samples were collected from the three newly installed monitoring wells (RMW-95, RMW-96, and RMW-97), the three previously existing upper aquifer monitoring wells (GM-79, GM-80, and GM-81) in the vicinity, and City of Moraine monitoring well MW-5. 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 flow-through cell (Appendix D).

The groundwater samples were collected and managed under standard chain-of-custody procedures and validated in accordance with the approved Supplemental RCRA Facility Investigation (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). Field parameter data for the groundwater monitoring event are presented in Appendix D. Analytical methods are summarized in Section 2.1.5, and analytical results are presented and discussed in Section 2.2.3.

2.1.2 Groundwater Elevation Monitoring

Groundwater levels were measured on October 11 and 12, 2017. The measured wells included on-site and off-site monitoring wells at the three facilities as shown on Figure 6 (upper aquifer wells) and Figure 7 (lower aquifer wells). Groundwater levels were also measured in former Moraine Assembly production wells (where accessible), former Moraine Assembly fire wells (where accessible), two lower aquifer wells (MT576M and MT596M) located east of the former Moraine Assembly and Engine plants, and three City of Moraine upper aquifer wells located west of the Great Miami River. 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.

2.1.3 Monthly Groundwater Recovery System 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 (TW-2 is an intermediate monitoring station prior to discharge to south storm water retention basin), 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. As proposed in a letter from RACER Trust to the U.S. EPA (Arcadis, Inc. 2012b), the TW-2 groundwater recovery and treatment system was shut down on July 31, 2012, following the shutdown procedures in the 1996 Operations, Maintenance, and Monitoring Manual Groundwater Recovery and Treatment. The impact of the system shutdown was measured by the results of monthly sampling of monitoring wells GM-6 and GM-17 for a total of 6 months (August 2012 through January 2013). As discussed in the April 24, 2013 letter to the U.S. EPA (Arcadis, Inc. 2013), shutdown of the groundwater recovery and treatment system continued through 2014 due to the results of this monthly sampling. Continued shutdown of the system is recommended based on the results of groundwater monitoring since TW-2 system shutdown.

Table 4 summarizes the VOC results for the monthly DN-13 effluent sampling during 2017. The analyses were conducted in accordance with methods specified in the NPDES Permit 1IC00008*KD.

2.1.4 2017 Groundwater Monitoring Program

In 2017, the following wells were sampled to assess the groundwater monitoring program objectives, as detailed in Section 1.2:

- Focused Off-Site Groundwater Investigation: GM-79, GM-80, GM-81, MW-5, 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-1: GM-23, GM-28R, and GM-29
  - RZ-3 West: GM-6, GM-8, and GM-32
  - RZ-3 East: GM-21
  - RZ-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

A summary of the 2017 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 5.

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 flow-through cell (Appendix D). One groundwater sample from well DN-13 was collected through the sampling valve according to SOP #28 (Arcadis G&M, Inc. 2002).

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). Field parameter data for the groundwater monitoring event are presented in Appendix D. Analytical results are presented and discussed in Section 2.2.3.

2.1.5 Laboratory Analytical Methods

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, PCE, toluene, 1,1,1-trichloroethane (1,1,1-TCA), TCE, vinyl chloride, and xylenes. As indicated previously, additional analyses were completed to support the effectiveness of ERD at the Site. These results are summarized in Appendices B and E.

Select groundwater samples from upper aquifer monitoring wells collected during the groundwater monitoring event were also analyzed for the following biogeochemical indicator parameters: manganese (total and dissolved), iron (total and dissolved), sulfate, sulfide, TOC, chloride, dissolved gases (ethane and ethene), and methane. Table 1 lists specific field, laboratory, and biogeochemical indicator parameters and laboratory analytical methods. The groundwater samples were submitted to TestAmerica Laboratories, Inc. in North Canton, Ohio or Microseeps/Pace Analytical Energy Services, LLC in Pittsburgh, Pennsylvania. Only ethene, ethane, and methane samples were submitted to and analyzed by Microseeps/Pace Analytical.

2.2 Groundwater Monitoring Program Results

2.2.1 Groundwater Elevation Monitoring

As part of the 2017 groundwater monitoring program, groundwater levels were measured to determine groundwater flow directions, horizontal hydraulic gradients, and vertical hydraulic gradients in and between the upper and lower aquifers. One groundwater elevation monitoring event was completed on October 11 and 12, 2017. The groundwater level measurement data are presented on Table 6.

2.2.1.1 Upper Aquifer

Depth-to-water data from upper aquifer wells were collected on October 11 and 12, 2017. and a contour map of the potentiometric surface was manually drawn (Figure 8). Groundwater flow for the upper aquifer is generally from northeast to southwest. The general groundwater flow conditions for 2017 are consistent with historical groundwater flow conditions documented in the subsequent annual groundwater monitoring reports.

Table 7 presents the 2017 monthly precipitation totals, recorded by the National Weather Service, and the deviation from reported average amounts. The 2017 annual total precipitation recorded at the Dayton, Ohio monitoring station was 50.83 inches, which was 12.97 inches above average. Precipitation amounts reported for the months of February, September, and December were below normal, while precipitation amounts for the other months were above normal.

Horizontal hydraulic gradient values within the upper aquifer in 2017, ranged from 3.4 x 10^{-4} feet per foot (ft/ft) to 5.4 x10^{-4} ft/ft (Table 8). The average horizontal hydraulic gradient, based on the well pairs presented in Table 8, was 4.5 x 10^{-4} ft/ft for the upper aquifer.

2.2.1.2 Lower Aquifer

Depth-to-water data from lower aquifer wells were collected on October 11 and 12, 2017 and a contour map of the potentiometric surface was manually drawn (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 2017 are consistent with historical groundwater flow conditions, with DN-13 in operation.

Horizontal hydraulic gradients in the lower aquifer in 2017 ranged in magnitude from 4.6 x 10^{-4} ft/ft to 7.0 x 10^{-4} ft/ft (Table 8). Overall, an average hydraulic gradient of 6.0 x 10^{-4} ft/ft was calculated for the lower aquifer; however, further downgradient the hydraulic gradient increased with proximity to pumping well DN-13 (Section 3.2).

2.2.2 Vertical Hydraulic Gradients

Vertical hydraulic gradients between the upper aquifer above the upper clay till, upper aquifer, and the lower aquifer were calculated for the groundwater elevation data collected on October 11 and 12, 2017. A total of 11 pairs of upper and lower aquifer wells were used to calculate the vertical hydraulic gradients upgradient, on-site, off-site, and downgradient (Table 9). 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 ranged between 2.2 x 10^{-2} ft/ft downward to 3.5 x 10^{-3} ft/ft upward. Based on the spatial distribution of the monitoring well pairs, it appears the overall vertical gradient for the upper aquifer on-site and downgradient is downward. However, one on-site well pair (GM-75S/GM-75D) had an upward gradient.

2.2.3 Groundwater Monitoring Analytical Results

As described in Section 2.1.4, groundwater was evaluated to evaluate the presence of the site-specific list of VOCs based on the groundwater monitoring objectives detailed in Section 1.2. Table 3 presents the groundwater results for 2017. The 1999 baseline through 2016 groundwater quality data for the site-specific VOC parameter list are provided in tables in Appendix B. The associated isoconcentration figures are provided as Appendix F.

2.2.3.1 Focused Off-Site Groundwater Investigation

The off-site, downgradient, upper aquifer monitoring wells GM-79, GM-80, GM-81, MW-5, RMW-95, RWM-96, and RMW-97 were sampled in 2017. TCE concentrations exceeded the Maximum Contaminant Level (MCL) of 5.0 ug/L in three locations: GM-79 (34 ug/L), GM-80 (7.5 ug/L), and RMW-95 (5.1 ug/L). In addition, the PCE concentration at GM-80 (20 ug/L) was above the applicable MCL of 5.0 ug/L. The other constituents were detected at relatively low concentrations or below reporting limits.

The groundwater data were screened against the applicable U.S. EPA Vapor Intrusion Screening Levels (Table 10). The water table wells (RMW-95, RMW-96, and RMW-97), which represent conditions closes to the receptor (i.e., residential properties), did not exceed the Vapor Intrusion Screening Levels.

2.2.3.2 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 ug/L in DN-13 (8.0 ug/L), GM-9 (12 ug/L), and GM-15 (5.7 ug/L). The other site-specific VOCs were detected at relatively low concentrations or below reporting limits in these wells and monitoring well GM-20D. Groundwater capture by extraction well DN-13 is discussed in Section 3.2.

2.2.3.3 IRZ Performance Monitoring

As described in Section 1.4, the in-situ reactive zone network consists of RZ-1, RZ-3 (East and West), and RZ-4 East. In 2017, carbon solution was introduced into the groundwater through injection wells shown on Figures 4 and 5. 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, Inc. 2010). Concentrations of site-specific VOCs as related to the performance of the in-situ reactive zones are presented in this section. Groundwater concentration trends for the in-situ reactive zone performance monitoring wells are presented in Figure 10 (RZ-1), Figure 11 (RZ-3 East), Figure 12 (RZ-3 West), and Figure 13 (RZ-4 East).

RZ-1

RZ-1 (Figure 4) was installed as an interim measure to remediate the area downgradient of the source area at the Site (Former Oil House Area). Three upper aquifer wells (GM-23, GM-28R [replacement for

GM-28], and GM-29) are used to monitor the groundwater quality to evaluate the effectiveness of the reactive zone (Figure 10).

- PCE concentrations at monitoring well GM-23 have decreased from 15,000 ug/L in 2001 to 30 ug/L in 2017. TCE concentrations have generally decreased from 2,200 ug/L in 2001 to 8.6 ug/L in 2017. Concentrations of cis-1,2-DCE have decreased from 19,000 ug/L in 2005 to 580 ug/L in 2017. Vinyl chloride concentrations increased to a concentration of 4,100 ug/L in 2006, and have generally decreased since to a concentration of 360 ug/L in 2017. Concentrations of trans-1,2-DCE were relatively low prior to initiating introductions in 2000. Concentrations peaked in 2006 at 270 J ug/L and have generally decreased to 22 ug/L in 2017.
- Monitoring well GM-28 was used for evaluating groundwater conditions downgradient of RZ-1. Due to an obstruction in the well, monitoring well GM-28 had not been sampled since 2011. As a result, replacement monitoring well GM-28R was installed on December 21, 2015. Due to constraints associated with property access and underground utilities, monitoring well GM-28R was installed approximately 87 ft southeast of monitoring well GM-28.

  Based on the 2011 data for monitoring well GM-28, concentrations of PCE, TCE, and cis-1,2-DCE remained consistently low since peak concentrations in 1999. Vinyl chloride concentrations in GM-28 fluctuated, with a maximum concentration of 12.4 ug/L in 2000. In 2011, the vinyl chloride concentration in monitoring well GM-28 was 0.57 J ug/L. Site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring well GM-28R in 2017.
- Monitoring well GM-29 is within the zone of influence of carbon introductions conducted in the Former Oil House Area after reactive zone RZ-1 was expanded in 2002. Concentrations of PCE and TCE have remained relatively consistent since 2000 with current concentrations of 11 ug/L and 280 ug/L in 2017, respectively. A peak concentration of cis-1,2-DCE (2,871 ug/L) was noted in 2000, and concentrations have decreased to 430 ug/L in 2017. Concentrations of vinyl chloride have fluctuated since introductions began in 2000 but have generally decreased since 2005, with a concentration of 53 ug/L in 2017.

RZ-3 East

Reactive zone RZ-3 East (Figure 5) is located south of the former Moraine Engine Plant, which is downgradient and cross-gradient to the east (Figure 3) of the Former Oil House Area. One upper aquifer well (GM-21) is used to monitor the groundwater quality to evaluate the effectiveness of the reactive zone (Figure 11).

- Monitoring well GM-21 is used to monitor groundwater conditions downgradient of RZ-3 East. PCE concentrations in this well have consistently been below reporting limits. Concentrations of TCE in well GM-21 peaked in 2002 at 230 ug/L and have generally decreased to 2.4 ug/L in 2017. Concentrations of cis-1,2-DCE have fluctuated since a peak concentration of 100 ug/L in 2003 and have generally decreased to a concentration of 19 ug/L in 2017. The maximum vinyl chloride concentration in monitoring well GM-21 (19 ug/L) was observed in 2008 and was 9.7 ug/L in 2017. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring well GM-21.

RZ-3 West

Reactive zone RZ-3 West (Figure 5) is located south of former Delphi Thermal Moraine. Two upper aquifer wells (GM-6 and GM-8) are used to monitor the groundwater quality to evaluate the effectiveness of the reactive zone (Figure 12).

- Monitoring well GM-6 is used for evaluating groundwater conditions downgradient of RZ-3 West. Concentrations of PCE have decreased in monitoring well GM-6 from 81 ug/L in 1999 to below reporting limits in 2017. Concentrations of TCE have decreased from 78 ug/L in 1999 to below reporting limits in 2017. Concentrations of cis-1,2-DCE have decreased from 53 ug/L in 1999 to 0.33 J ug/L in 2017. Concentrations of vinyl chloride have decreased from 12 ug/L in 2002 to below reporting limits in 2017. The other site-specific VOCs were below reporting limits in monitoring well GM-6 in 2017.
- Monitoring well GM-8 serves as a downgradient well for reactive zone RZ-3 West. Concentrations of PCE, TCE, and cis-1,2-DCE have remained consistently low or below their respective reporting limits since 2000. Concentrations of vinyl chloride have remained at or below the reporting limit since 2007 and were below the reporting limit in 2017. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring well GM-8 in 2017.

RZ-4 East

Reactive zone RZ-4 East (Figure 5) was designed to address VOC impacts identified west of RZ-3 West. One upper aquifer well (GM-19S) is used to monitor the groundwater quality to evaluate the effectiveness of the reactive zone (Figure 13).

- Concentrations of PCE, TCE, and cis-1,2-DCE in monitoring well GM-19S have been low or below reporting limits since 2007. Concentrations of vinyl chloride reached a peak concentration of 17 ug/L in 2013 and have decreased to 4.0 ug/L in 2017. Concentrations of the other site-specific VOCs were detected at relatively low concentrations or below reporting limits and consistent with the previous sampling events.

2.2.3.4 Monitoring of Closed Settling Lagoons

Groundwater quality is monitored upgradient and downgradient of the closed North and South Settling Lagoons as described in Section 2.1. Upgradient monitoring wells used are HR-4 for the North Settling Lagoon and HR-1 and HR-17 for 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 2017.

Closed North Settling Lagoon

- Concentrations of site-specific VOCs continued to be detected at relatively low concentrations or below reporting limits in monitoring wells HR-4 and W-2-N in 2017.
- Concentrations of PCE and TCE in monitoring well W-3-N have been generally decreasing since peak values in 2001 at 9.0 ug/L and 2.1 ug/L, respectively. Current concentrations of PCE and TCE

are below reporting limits. Cis-1,2-DCE had a peak concentration of 291 ug/L in 1999 and has been generally decreasing to a current concentration of 24 ug/L in 2017. Vinyl chloride had a peak concentration of 24 ug/L in 2000 and has a current concentration of 1.4 ug/L in 2017.

- 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 ug/L in 2009 and has remained relatively consistent, with a concentration of 8.8 ug/L in 2017. Concentrations of cis-1,2-DCE has also remained relatively consistent with a concentration of 9.2 ug/L in 2017. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Closed South Settling Lagoon

- Concentrations of PCE in monitoring well HR-1 have fluctuated with a concentration of 56 ug/L in 2017. Concentrations of TCE in monitoring well HR-1 have fluctuated and decreased to 0.65 J ug/L in 2017. Concentrations of the other site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring well HR-1.
- Concentrations of PCE in monitoring well HR-17 have been relatively consistent since 2011 with a concentration of 150 ug/L in 2017. Concentrations of TCE peaked at 160 ug/L in 2014 and 2015 and decreased to 24 ug/L in 2017. 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, cis-1,2-DCE, and vinyl chloride in monitoring well W-2-S have been low or below reporting limits since 1999. The concentration of TCE peaked at 23 ug/L in 2015 and has decreased to 5.9 ug/L in 2017. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- The PCE concentration in monitoring well W-3-S (68 ug/L) in 2017 is similar to the peak concentration of 65 ug/L in 2015. The TCE concentration has decreased from the peak concentration of 97 ug/L in 2015 to 7.6 ug/L in 2017. Concentrations of cis-1,2-DCE and vinyl chloride have been low or below reporting limits since 1999. The other site-specific VOCs were below reporting limits.
- Concentrations of PCE in monitoring well W-4-S have fluctuated since 1999, with a concentration of 39 ug/L in 2017. Concentrations of TCE have fluctuated since 1999, with a concentration of 40 ug/L in 2017. Concentrations of cis-1,2-DCE have increased to a peak concentration of 22 ug/L in 2017. Concentrations of vinyl chloride have been below the reporting limit since 1999. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

3 CORRECTIVE MEASURE PERFORMANCE

3.1 In-Situ Reactive Zone Performance Results

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

- Enhanced reductive dechlorination continued to achieve the desired reduction of chlorinated VOC concentrations in groundwater.
- As optimal, aquifer conditions were strongly reducing within and downgradient of the in-situ reactive zones due to the introduction of carbohydrate, as evidenced by the presence of methane at concentrations significantly 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 as a result of the quarterly injection frequency.

3.2 Capture Zone Performance Results

Pumping well DN-13 is utilized to capture site-specific VOCs in lower aquifer groundwater. To determine the effectiveness of DN-13 in this regard, several lines of evidence were evaluated 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).

1. Review site data, CSM, and remedial objectives
2. Define site-specific target capture zone(s)
3. Interpret groundwater levels
4. Complete calculations for basis of hydraulic capture
5. Evaluate groundwater concentration trends
6. Interpret site capture

3.2.1 Site Data and Conceptual Site Model

The initial steps for this capture zone analysis included review of Site data and the CSM, which consists of the hydrogeologic structure, hydrogeologic properties (e.g. hydraulic conductivity), site groundwater elevations (Table 6), site hydraulic gradients (horizontal [Tables 8 and 11] and vertical [Table 9]), and DN-13 operational data (e.g. pumping rates).

A depiction of the lower aquifer, including the location of the largely continuous regional clay till unit, and the screened interval of monitoring wells and DN-13 is presented in the 2012 CMP (Arcadis, Inc. 2012a).

The lower aquifer hydraulic conductivity ranges from approximately 260 to 440 ft/day (Arcadis, Inc. 2012a and Geraghty & Miller, Inc. 1990). Site groundwater elevation contours (i.e., potentiometric surface map) for the lower aquifer are presented on Figure 9 and indicate that groundwater generally flows in a northeast to southwest direction across the Site.

The approximate run-time average flow rate (pump in operation) for DN-13 in 2017 was approximately 798 gallons per minute (gpm) or 1.15 million gallons per day (MGD) while the average period (daily) rate (total flow volume averaged over the entire year – including downtime) for 2017 was approximately 730 gpm (1.05 MGD). The average period extraction rate for DN-13 for October 2017 was approximately 808 gpm (1.16 MGD), which coincides with the annual groundwater elevation monitoring. Well DN-13 was operational for 93% of 2017 except for the periodic minor shutdowns related to power failures and for operation and maintenance activities detailed in Appendix G.

3.2.2 DN-13 Pumping Well Operation and Maintenance

Well DN-13 is a lower aquifer extraction well that is owned by Montgomery County and operated by Montgomery County and RACER Trust. Well DN-13 was part of the former Greater Moraine Water System located in the former North Dryden Road well field and has been used in a Pump-to-Waste Program since March 1990 in cooperation with former GM Corporation until March 31, 2011. The operation has continued since that time in cooperation with RACER Trust.

The interim measure for the lower aquifer at the Site consists of continued pumping of DN-13 to capture impacted groundwater. As required by the NPDES permit regulated by the Ohio EPA, the outfall for DN-13 discharges to the Great Miami River, and monthly sampling is performed to monitor water quality along with the discharge flow rate.

An operation and maintenance plan has been defined in the Extraction Well DN-13 Operation and Maintenance Memorandum (Arcadis, Inc. 2015a) and the Extraction Well DN-13 Operation and Maintenance Statue Memorandum (Arcadis, Inc. 2015b). Data has been collected monthly since April 2015 and is used to evaluate the performance of extraction well DN-13 by collecting specific data to monitor extraction well performance; establishing criteria to determine reduced performance and prompt corrective action; and developing protocols for corrective action. DN-13 performance monitoring and corrective actions are detailed in the quarterly progress reports submitted to the U.S. EPA and the Ohio EPA. Corrective actions, monitoring data, and operation and maintenance activities/actions for DN-13 are provided in Appendix G.

3.2.3 Site-Specific Target Capture Zone

The target capture zone for DN-13 is defined as the extent of impacted groundwater in the lower aquifer containing total site-specific VOC concentrations above 5 ug/L (Figure F-12 and Figure 14). The pumping program at DN-13 is intended to prevent further migration of the VOC plume and to capture the VOC-impacted groundwater in the lower aquifer downgradient of the upper aquifer source areas at the Site. The maximum width (perpendicular to groundwater flow) of total site-specific VOC concentrations greater than 5 ug/L in the lower aquifer was estimated to be 2,700 ft. To account for some uncertainty in the delineation, an additional 250 ft was added (i.e., 125 ft on each side), which results in an approximate plume width of 2,950 ft.

3.2.4 Interpreted Groundwater Levels

3.2.4.1 Potentiometric Surface

Groundwater elevation data are measured on an annual basis at the Site (Table 6), and this data can be used to support several lines of evidence to demonstrate hydraulic capture. In general, groundwater in the lower aquifer flows primarily from the northeast to the southwest (Figure 9). Groundwater elevation data from the surrounding monitoring well network indicate that there is a localized cone of depression in the vicinity of DN-13 with groundwater flowing towards the pumping well. An inferred capture zone was delineated by drawing flow lines perpendicular to groundwater elevation contours in the lower aquifer and is shown on Figure 14. The inferred delineation results in an estimated capture width of approximately 3,300 ft, just upgradient of DN-13.

3.2.4.2 Horizontal Hydraulic Gradients

In addition to capture interpretation via potentiometric surface maps, observed water-level data were also used to approximate the extent of hydraulic capture by calculating the magnitude and direction of horizontal hydraulic gradients between sets of adjacent monitoring wells located in the vicinity of the extraction well DN-13. This triangular irregular network (TIN) analysis provides a means of evaluating observed water-level data free of bias that is inherent in hand-drawn potentiometric surface maps.

Generally, monitoring well pairs are used as gradient control points for capture evaluation (i.e., used to demonstrate inward gradients or inward flow towards the pumping well). However, the current distribution of monitoring wells in the vicinity of DN-13 prohibits the designation of practical well pairs. To provide an accurate measure of the extent of hydraulic influence that DN-13 has on the lower aquifer system, hydraulic gradients were calculated to evaluate the flow direction (gradient angle and magnitude) using water-level data from sets of three adjacent monitoring wells (Devlin 2003). This method of analysis is consistent with and presented in the U.S. EPA's capture zone guidance (U.S. EPA 2008). Five sets of adjacent monitoring wells (three per set) located in the vicinity of DN-13 were evaluated using 2017 groundwater elevation data and are shown in Table 11 and on Figure 15. Results of the groundwater flow directions (hydraulic gradients) in the lower aquifer indicated effective capture of groundwater by DN-13.

3.2.4.3 Vertical Hydraulic Gradients

Vertical hydraulic gradients were calculated from available upper and 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 9 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 compared to on-site are greater (GM-18/GM-13 and GM-17/GM-11 compared to GM-2/GM-1 and 4S/GM-5).

3.2.5 Calculations for Basis of Hydraulic Capture

To verify the interpretation of field data (i.e. potentiometric surface maps), flow calculations were also completed to evaluate the extent of capture and provide an additional line of evidence. As outlined in the U.S. EPA guidance (U.S. EPA 2008), the simplest and most commonly applied horizontal capture zone calculation is the estimated flow rate calculation. Through application of Darcy's law, this calculation provides an estimated groundwater flux moving through the cross-sectional area of the target capture zone such that a pumping rate required to capture this flux can be determined. The estimated groundwater flux/required pumping rate can then be compared to the actual pumping rates measured in the field to assess whether or not the system is pumping at a rate sufficient to contain the target capture zone.

Simplified assumptions for this calculation include the following:

- Homogeneous, isotropic aquifer of infinite extent
- Confined aquifer, uniform aquifer thickness
- Fully penetrating recovery well(s)
- Uniform regional horizontal hydraulic gradient
- Steady-state flow
- Negligible vertical gradient
- Net recharge is accounted for in the regional hydraulic gradient
- No other sources of water to the recovery well (e.g., flux from rivers or from other aquifers), except as represented by the "factor" in the estimated flow rate calculation

The required pumping rate/groundwater flux is calculated using the following equation:

$Q = K*i*(b*w)*\mathit{factor}$

where:

Q is the volumetric recovery rate or groundwater flux (cubic feet/day [ft^3/day])

K is the hydraulic conductivity (ft/day)

i is the regional hydraulic gradient (ft/ft)

b is the saturated thickness (ft)

w is the plume width (ft)

The *factor* term is intended to account for other contributions to the pumping well such as flux from a river or induced vertical flow from other stratigraphic units. The assumed value for this term ranges from 1.5 to 2.0 (U.S. EPA 2008).

As noted in the U.S. EPA guidance document, this calculation requires an estimate of the regional hydraulic gradient, without the influence of pumping. Because regional hydraulic gradients often change with time, U.S. EPA (2008) suggests that, in some cases, water-level data obtained cross-gradient or even upgradient and collected during the remedy implementation may be more appropriate than pre-remedy groundwater level data for calculating regional hydraulic gradient. As such, the average horizontal hydraulic gradient, *i*, for the lower aquifer upgradient of DN-13 in 2017 is approximately 6.0×10^{-4} ft/ft (Table 8).

As previously noted, the hydraulic conductivity, *K*, for the lower aquifer ranges from approximately 260 to 440 ft/day and the width of the target capture zone, *w*, in the lower aquifer is conservatively estimated to be approximately 2,950 ft. The estimated saturated thickness (and, consequently, the impacted thickness), *b*, of the lower aquifer is approximately 85 ft.

Using the parameter values listed above, the groundwater flux/required pumping rate was calculated for the Site and shown in the table below.

Condition	Hydraulic Conductivity (ft/day)	Hydraulic Gradient (ft/ft)	Saturated Thickness (ft)	Lower Aquifer Plume Width (ft)	Factor	Groundwater Flux/Pumping Rate (MGD/gpm)
2017 Minimum	260	6.0×10^{-4}	85	2,950	2	0.59/406
2017 Maximum (Conservative)	440	6.0×10^{-4}	85	2,950	2	0.99/687

Note that a maximum *factor* of 2 was applied in both cases to provide a realistic range in groundwater flux. For the given range in hydraulic conductivity values, the minimum and maximum groundwater flux through the target capture zone are estimated to be approximately 0.59 and 0.99 MGD (406 and 687 gpm), respectively. Recall that the average period (daily) extraction rate for DN-13 for 2017 was calculated to be 1.05 MGD (730 gpm) while the period rate in October 2017 was 1.16 MGD (808 gpm). Compared to the estimated DN-13 groundwater flux/required pumping rates under both hydraulic conductivity conditions, the actual period extraction rates for 2017 exceed the maximum (conservative) groundwater flux estimate. Therefore, even after incorporating an overly conservative set of parameters and applying a maximum value for the *factor*, the results of this calculation suggest that the current operation rate of DN-13 is sufficient to capture the target capture zone.

It is important to note that this mathematical model does not and cannot account for aquifer heterogeneities (e.g., changes in transmissivity) or system complexities (e.g., boundary effects, recharge, off-site sources, and off-site pumping). Therefore, these results represent a very simplified and idealized depiction of the actual groundwater flux through the aquifer.

3.2.6 Chlorinated VOC Concentration Trends

Because plume migration generally follows groundwater flow towards pumping well DN-13 (Appendix F), chlorinated VOC concentration trends were statistically analyzed for three monitoring wells located cross-gradient of DN-13. The goal of this trend analysis was to determine if chlorinated VOC concentrations were increasing, decreasing, or stable to provide an additional line of evidence for DN-13 capture.

Data were statistically analyzed from three lower aquifer monitoring wells (GM-9, GM-15, and GM-20D). These monitoring wells were chosen based on two criteria: having a sufficient number of data points to allow for statistical testing and for their location relative to DN-13. It was also of interest to examine the period beginning in July 2008, when Arcadis assumed control of the flow rate at the extraction well.

The statistical tests were performed for the total concentration of detected chlorinated VOCs. The chlorinated VOCs that were detected in the three wells at any time from 1999 to 2017 included 1,1,1-TCA, 1,1-DCA, cis-1,2-DCE, PCE, trans-1,2-DCE, TCE, and vinyl chloride. The detected concentrations of the chlorinated VOCs were totaled and are presented in Table H-1. Field duplicates were not included. J-flagged concentrations were taken to be quantitative for the purposes of this statistical evaluation. Non-detections were treated as zeroes in the summation.

Trends in groundwater quality were evaluated using both the Mann-Kendall test for trends and the Sen's Slope Estimator. The coefficient of variation was also used as a measure of stability of groundwater chlorinated VOC concentrations. The purpose of these tests was to identify statistically significant trends in the concentrations of chlorinated VOCs. Statistical methods were employed following Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Unified Guidance, provided by the U.S. EPA (U.S. EPA, 2009; Unified Guidance).

The Mann-Kendall trend test is a non-parametric test for linear trends based upon the concept that a series of data points without a trend should fluctuate randomly around a constant mean. The test is non-parametric because there is no requirement that the data follow any specific underlying distribution. If an increasing trend were to exist, one would expect an earlier point to have a lower value than a later point. The converse would be true if a decreasing trend were present. A Mann-Kendall statistic S is computed by comparing each pair of data points in a data set and assigning a value of +1 or -1 if the earlier data point is less than the later data point or greater than the later one, respectively. If the two data points are equal, the pair is assigned a zero. The values assigned to the pairs are summed. If the total is positive, it implies that the majority of the differences between points are positive, indicating a positive trend. Likewise, a negative sum indicates a decreasing trend. A value at or near zero indicates that the differences are roughly equal, implying that there is no trend. A critical value of S is determined based on the number of points in the data set and the level of significance (α) of the test. If the Mann-Kendall statistic S exceeds the critical S, then an upward trend is statistically significant. Conversely, if the Mann-Kendall S is negative and its absolute value is greater than the critical S, then there is a statistically significant downward trend. An alpha of 0.05 was used with 0.025 significance on each of two tails, when the data sets analyzed had 10 or more members. For data sets with eight members, an alpha of 0.10 was used with 0.05 significance on each of two tails. Details concerning this test and how to conduct it can be found in Section 17.3.2 of the Unified Guidance. The statistics for the Mann-Kendall test are implemented in Microsoft Excel based on U.S. EPA (2009) guidance.

The magnitude of the trend can be evaluated using Sen's slope estimator. The Sen's slope estimator, sometimes referred to as the Theil-Sen line (Helsel and Hirsch, 2002), is a non-parametric method for estimating the slope of time-series data (U.S. EPA, 2006). The method was first introduced by Sen in 1968 (Sen, 1968). The approach involves computing slopes for each point compared to every successive point, and then using the median of these slopes as an estimate of overall slope (U.S. EPA, 2006). Sen's slope estimator is robust to outliers, data sets with a limited number of non-detects (i.e., values less than sample reporting limits), and datasets with missing values (Gibbons, 1994; U.S. EPA, 2006). In fact, nonparametric methods such as Sen's slope estimator often perform as well or better than parametric methods and have the added benefit of avoiding pitfalls common to parametric regression methods, which can include violating assumptions of normality or failure to address leverage points that can have a substantial effect on the results (Helsel and Hirsch, 2002). For the Sens' trend analysis, values below the reporting limit were treated in the same manner as done for the Mann-Kendall analysis as per U.S. EPA (2009). A 95% confidence level ($\alpha = 0.05$ significance level) was used to test the null hypothesis that the slope is not significantly different from zero (no trend) for the Sen's slope estimation. The U.S. EPA (2009) recommends that at least four and preferably eight samples be collected in order to perform Sen's slope estimator. For the Sens' trend analysis, values below the reporting limit were treated in the same manner as done for the Mann-Kendall analysis as per U.S. EPA (2009).

For each data set, the coefficient of variation index was computed by dividing the standard deviation by the arithmetic mean of the data. If no statistically significant trend could be identified by the Mann-Kendall test and if the coefficient of variation was less than or equal to 1.0, then the data set was considered to be "stable." If no trend was identified and the coefficient of variation exceeded 1.0, then the analysis could only conclude that there was "no trend."

The results of the statistical tests are presented in Table H-2 of Appendix H. Time series plots for each dataset along with the results from the Mann-Kendall and Sen's slope estimator trend tests are presented in Figures H-1 through H-6. When the full data set was analyzed, no statistically significant trend was identified by the Mann-Kendall test for GM-9 or GM-15. Because the coefficient of variation was less than 1.0 for both monitoring wells, the chlorinated VOC concentration data were determined to be stable. For GM-20D, a statistically significant decreasing trend was observed. The three monitoring well data sets were tested using Sen's Slope Estimator as a second line of evidence. In all three cases, Sen's Slope Estimator confirmed the results obtained using the Mann-Kendall test.

For the post-July 2008 dataset (i.e., the time during which Arcadis was in control of the DN-13 extraction well flow rate), a statistically significant decreasing trend was identified with the Mann-Kendall test for trends in GM-9 and GM-20D. The decreasing trend in GM-9 was not confirmed with the Sen's slope estimator, indicating that although concentrations may be decreasing, the slope of the trend was not found to be significant. Therefore, the total chlorinated VOC concentrations in GM-9 are interpreted to be stable. The decreasing trend observed in GM-20D was confirmed with the Sen's Slope Estimator test.

An increasing trend was identified in GM-15 based on the results from the Mann-Kendall and Sen's slope estimator trend tests using the post-July 2008 dataset. Total chlorinated VOC concentrations at GM-15 ranged from 6.9 ug/L to 10.8 ug/L from 1999 to 2014. In November 2015 and August 2016, the total chlorinated VOC concentrations increased to 17.34 ug/L and 18.04 ug/L, respectively, but decreased slightly in August 2017 to 16.85 ug/L. Upon review of the historical data (Appendix B), it should be noted that the increasing total chlorinated VOC concentrations are attributable to increasing daughter product concentrations, specifically cis-1,2-DCE and vinyl chloride. The concentrations of TCE (parent product) do not appear to be increasing; rather, the TCE data have remained relatively consistent. Consequently, these data suggest effective capture.

3.2.7 Interpreted Capture

The lines of evidence evaluated indicate that the current operation of DN-13 in 2017 is providing sufficient capture within the lower aquifer to control and prevent further migration of site-specific VOCs. The lines of evidence investigated as part of this analysis and their associated conclusions can be summarized as follows:

1. Interpret Groundwater Levels.
    a. Potentiometric Surface Map – The lower aquifer groundwater elevation data indicate that groundwater flows from the northeast to the southwest towards pumping well DN-13 and that the inferred capture zone encompasses the target capture zone.
    b. Horizontal Hydraulic Gradients – The horizontal hydraulic gradient evaluation indicates that DN-13 is providing effective capture in the downgradient region of the lower aquifer.
    c. Vertical Hydraulic Gradients – The vertical hydraulic gradients calculated for monitoring well pairs in the vicinity of DN-13 indicate an overall downward (negative) vertical hydraulic gradient from the upper to the lower aquifer.
2. Groundwater Flux Calculation – The groundwater flux calculations, which are based on conservative parameter values, indicate that the 2017 average operating flow rate at DN-13 was sufficient to capture the groundwater flux of the total site-specific VOC groundwater plume moving through the target capture zone.
3. Evaluate Groundwater Concentration Trends – Results from the total chlorinated VOC trend analysis and data review show that chlorinated VOC concentrations in the lower aquifer in the vicinity of DN-13 are decreasing, stable, or potentially attributable to natural attenuation (e.g., increasing concentrations of daughter products), thereby indicating effective plume capture.

Based on these multiple lines of evidence, an interpreted capture zone was delineated and shows containment of the target capture zone on Figure 16. The results of this updated analysis are consistent with previous analyses and the lines of evidence suggest that sufficient hydraulic capture within the lower aquifer at the Site has been achieved.

4 CORRECTIVE ACTION COMPLETION STRATEGY

4.1 Effectiveness of Interim Measure Activities

4.1.1 Background and Objectives

Updated Corrective Measures Objectives (CMOs) based on the RFI, Supplemental RFI, and supplemental investigation results, including the Baseline Risk Assessment (BRA) conclusions; Supplemental BRA conclusions; CMP supplemental risk assessment; requirements of the AOC; and U.S. EPA guidance (U.S. EPA 1994) have been provided in the 2012 CMP (Arcadis, Inc. 2012a). The CMOs proposed in the CMP to address site-specific VOCs in groundwater are presented below.

The CMOs for the protection of human health for the upper aquifer are as follows:

1. Address chlorinated VOC mass from historic releases from the primary source area (former Oil House Area), including the chlorinated VOC mass delineated near the former Process Sump Area
2. Limit future migration of chlorinated VOCs from the primary source area to downgradient portions of the upper aquifer and into the lower aquifer
3. Prevent the migration of chlorinated VOCs at concentrations exceeding the MCLs beyond the existing plume boundary
4. Continue implementing the final corrective measures until the CMOs are achieved on-site and MCLs can be met and maintained at the property line point of compliance without active remedial measures

The CMOs for the protection of human health for the lower aquifer are as follows:

1. To maintain the lower aquifer as usable groundwater for potential off-site, downgradient drinking water uses
2. Prevent the migration of chlorinated VOCs at concentrations exceeding MCLs beyond the existing plume boundary
3. To meet and maintain MCLs at the downgradient property line point of compliance without active remedial measures

Implementation of the final remedy as outlined in the 2012 CMP is pending U.S. EPA approval.

4.1.2 Results

An evaluation of the data collected in 2017 is presented in Section 2.2.3. Current site-specific VOC groundwater distribution within the upper aquifer above MCLs is migrating downgradient (southwest) beyond the property boundary. For the lower aquifer, well DN-13, through several lines of evidence, indicates sufficient capture within the lower aquifer exists to mitigate and control the migration of site-specific VOCs off-site (refer to Section 3.2).

4.2 Monitoring of Closed Lagoons

4.2.1 Background and Objectives

One additional component of the groundwater monitoring program is monitoring of other specific units (i.e., the closed lagoons). 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 North and South Settling Lagoons.

4.2.2 Methodology

As indicated above, the 2017 groundwater monitoring program was developed 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 (Appendix I).

The monitoring wells identified in the 2017 groundwater monitoring program for monitoring each of the closed lagoons are:

- Closed North Settling Lagoon: HR-4 (upgradient), W-2-N, W-3-N, and W-4-N
- Closed South Settling Lagoon: HR-17 (upgradient), W-2-S, W-3-S, and W-4-S

Additionally, monitoring well HR-1 was sampled to better characterize the increased concentrations at monitoring wells HR-17 and W-4-S.

4.2.3 Results

Data considered in the evaluation included results through the August 2017 monitoring event and data ranging back to the initial post-closure monitoring event conducted in November 2001. Currently, the data set collected since the lagoons were closed includes 17[1] data points for any monitoring well/constituent pair.

For the Mann-Kendall trend analysis, values below the reporting limit were replaced by a common value lower than the minimum detected value (i.e., 95% of the minimum detected value) for each dataset as per U.S. EPA (2009), so 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

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[1] With the exception of W-4-S which contains 21 data points for each constituent.

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 North and South Settling Lagoons were reviewed for temporal trends. Summary statistics and results from the statistical trend tests for each dataset are presented in Table I-1. A summary matrix of trend test results is presented in Table I-2. The data plots for key constituents are provided on Figure I-1 for the closed North Settling Lagoon (NSL) and Figure I-2 for the closed South Settling Lagoon (SSL) in Appendix I. 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 I-3 to I-23.

For the wells used to assess conditions at the North Settling Lagoon, the linear regression analysis suggest increasing concentrations of 1,1-DCA and cis-1,2-DCE in downgradient well W-4-N (Figures I-5 and I-7, respectively). In each of these cases, the slope is positive and the linear regression had a coefficient of determination (R^2) greater than 0.5. As provided for in the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002), further assessment of these trends was performed using the Mann-Kendall trend test. The results of this test indicate a statistically significant increasing trend for the 1,1-DCA and cis-1,2-DCE concentrations in downgradient well W-4-N. These increasing trends are also confirmed by the Sen's slope estimator trend test. An increasing trend was identified for trans-1,2-DCE in W-4-N by the both the Mann-Kendall and Sen's slope estimator trend tests (Figure I-8), although the R^2 was less than 0.5 (0.41). Concentrations of cis-1,2-DCE and trans-1,2-DCE were approximately an order of magnitude or more below the applicable 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, 1,1-DCA, and cis-1,2-DCE by the Mann-Kendall trend test (Figures I-3, I-4, and I-6, respectively), although the magnitude of these trends was not statistically significant using the Sen's slope estimator trend test. The R^2 was less than 0.5 for 1,1-DCA and cis-1,2-DCE, while the R^2 for 1,1,1-TCA was greater than 0.5. Concentrations of all three constituents were at least two orders of magnitude below the MCL, where an MCL was available.

In summary, the North Settling Lagoon data indicate a statistically significant increasing trend in cis-1,2-DCE, 1,1-DCA, and trans-1,2-DCE in downgradient monitoring well W-4-N. Several observations suggest a source (upgradient) other than the North Settling Lagoon for cis-1,2-DCE, 1,1-DCA, 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 above MCLs and the low-level detections of 1,1-DCA (less than 6.5 ug/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 North Settling Lagoon.

For the wells used to assess conditions at the South Settling Lagoon, increasing trends were identified in the four wells for at least two to five of the following five constituents: 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, and TCE (Table I-1 and Figure I-2).

- **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 ug/L to 170 ug/L which were above the MCL of 5 ug/L (Figure I-14). A statistically significant increasing trend for TCE was also identified with both the Mann-Kendall and Sen's slope estimator trend tests, although the R^2 was less than 0.5. Concentrations over the past five sampling events ranged from <2.0 to 160 ug/L and were above the MCL of 5 ug/L in four of the last five sampling events (Figure I-20).

- **W-2-S**. A statistically significant increasing trend for cis-1,2-DCE and TCE were identified with both the Mann-Kendall and Sen's slope estimator trend tests, although the R^2 was less than 0.5. A statistically significant increasing trend for trans-1,2-DCE was identified with the Mann-Kendall, but not confirmed by the Sen's slope estimator trend tests – the R^2 was also less than 0.5. Concentrations for cis-1,2-DCE and trans-1,2-DCE were both below the MCL (Figures I-11 and I-17, respectively). TCE concentrations over the past five sampling events ranged from 5.0 to 23 ug/L which were equal to or above the MCL of 5 ug/L (Figure I-21).
- **W-3-S**. Statistically significant increasing trends for both 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 I-12 and I-15, respectively), but was less than 0.5 for TCE (Figure I-22). Statistically significant increasing trends for both 1,1-DCA and trans-1,2-DCE were identified with the Mann-Kendall, but not confirmed by the Sen's slope estimator trend tests – the R^2 was less than 0.5 for both (Figures I-9 and I-18, respectively). 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 25 to 68 ug/L and were above the MCL of 5 ug/L. Concentrations of TCE over the past five sampling events ranged from 7.6 to 97 ug/L and were above the MCL of 5 ug/L.
- **W-4-S**. A statistically significant increasing trend for 1,1-DCA (Figure I-10), cis-1,2-DCE (Figure I-13), PCE (Figure I-16), trans-1,2-DCE (Figure I-19), and TCE (Figure I-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 the five constituents. 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 39 to 74 ug/L and were above the MCL of 5 ug/L. Concentrations of TCE over the past five sampling events ranged from 40 to 72 ug/L and were above the MCL of 5 ug/L.

The detected concentrations for PCE and TCE in the upgradient monitoring well HR-17 in the 2017 sampling event were 150 ug/L and 24 ug/L, respectively. The trends of PCE and TCE concentration versus time in monitoring well HR-17 are strongly positive and statistically significant. The observed concentration increases identified in downgradient monitoring well W-4-S for TCE and PCE appear 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 1% significance level (Figure I-24). This correlation suggests a source (upgradient) other than the South Settling Lagoon 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 below applicable drinking water standards. Further, the presence of daughter products 1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE is expected from the natural attenuation processes.

Data collected from HR-1, approximately 1,000 feet upgradient of HR-17 and the South Settling Lagoon corroborate the statistical analysis. TCE was detected at 190 ug/L in 2016 and at 0.65 J ug/L in 2017.

PCE was detected at 63 ug/L in 2016 and at 56 ug/L in 2017. Overall, concentrations of PCE and TCE both show an increasing trend at HR-01 (Figure I-25). Concentrations of cis-1,2-DCE, trans-1,2-DCE, and 1,1-DCA show decreasing trends and were detected at concentrations below MCLs, similar to the results in HR-17. Increasing trends at both upgradient wells HR-01 and HR-17 suggest a source other than the SSL for the TCE and PCE increases.

In conclusion, the monitoring of the closed North and South Settling Lagoons showed that the closed lagoons do not appear to be contributing hazardous waste constituents to existing groundwater concentrations in the area.

5 CONCLUSIONS AND RECOMMENDATIONS

This groundwater monitoring report presents the groundwater monitoring activities completed in 2017 at the RACER Trust Moraine Facilities located in Moraine, Ohio. These activities were completed to meet the four objectives presented in Section 1.2. Compliance with these objectives is presented for the focused off-site groundwater investigation, interim measures, closed lagoons, and on-going groundwater monitoring in the following sections.

5.1 Focused Off-Site Groundwater Investigation

Three monitoring wells were installed between the Miami Shores neighborhood and the west bank of the Great Miami River to evaluate off-site shallow groundwater concentrations at the water table (upper aquifer). Groundwater samples were collected from the three newly installed monitoring wells (RMW-95, RMW-96, and RMW-97), the three previously existing upper aquifer monitoring wells (GM-79, GM-80, and GM-81), and City of Moraine well MW-5. The groundwater data were screened against the applicable U.S. EPA Vapor Intrusion Screening Levels (Table 10). The water table wells (RMW-95, RMW-96, and RMW-97), which represent conditions closes to the receptor (i.e., residential properties), did not exceed the Vapor Intrusion Screening Levels. 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.

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 and hydraulic control) designed to reduce existing plume concentrations thereby achieving plume reduction and migration control.

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 2017 monitoring, the upper aquifer conditions in the areas downgradient of the in-situ reactive zones have been converted to strongly reducing conditions through the introduction of a carbon source, as evidenced by the presence of methane at concentrations significantly above baseline data and further supported qualitatively with field parameter data (e.g., low dissolved oxygen and oxidation-reduction potential). Further, the chlorinated 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 source areas. The frequency of substrate injections will continue to be quarterly in 2017 based on the updated transport velocities in the updated CSM.

5.2.2 Hydraulic Capture

Groundwater elevation monitoring, horizontal and vertical hydraulic gradients, groundwater flux calculations, and lower aquifer chlorinated VOC concentration trends indicate that the interim measure DN-13 continues to be effective at maintaining capture of the target capture zone in the lower aquifer. Based on the effective performance of the pumping program during 2017, the current pumping program at DN-13 will continue to be implemented and evaluated in 2018.

Concentrations in upper aquifer monitoring wells immediately downgradient of the Site to the southwest, as well as concentrations in lower aquifer wells remain above MCLs. Therefore, active measures to include a final proposed site-wide remedy are still required to achieve the corrective measures objectives. Both the amended in-situ treatment and hydraulic capture (lower aquifer) will continue until modifications are implemented for the final site-wide remedy.

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 determined that post-closure monitoring data indicate that these units do not appear to be affecting groundwater quality. Based on the results from the 2017 monitoring, no changes in the monitoring program for the closed lagoons are proposed.

5.4 2018 Groundwater Monitoring Program

Based on the on-going remedial design tasks and the expected remedy implementation, it is proposed that the 2018 groundwater monitoring program remain consistent with the sampling program for 2017. This will include the monitoring wells associated with the Focused Off-Site Groundwater Investigation, performance monitoring of DN-13, performance monitoring of the IRZs, and the closed North and South Settling Lagoons.

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TABLES

Table 1
Groundwater Monitoring Program for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

2017 Site-Wide Annual Groundwater Sampling

Upper aquifer monitoring wells analyzed for the site-specific list of VOCs(1) and field parameters(2) in 2017. Biogeochemical parameters(3) were analyzed at select wells identified below:

W-2-N
W-3-N
W-4-N
HR-1
HR-4
HR-17
W-2-S
W-3-S
W-4-S
GM-6(3)
GM-8(3)
GM-19S(3)
GM-21(3)
GM-23(3)
GM-28R(3)
GM-29(3)
GM-32(4)
GM-79(5)
GM-80(5)
GM-81(5)
MW-5(5)
RMW-95(5)
RMW-96(5)
RMW-97(5)

Lower aquifer monitoring wells sampled for the site-specific list of VOCs(1) and field parameters(2) in 2017:

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

Analytical Methods

The following table presents the analytical methods used to analyze each parameter sampled during the site-wide annual groundwater monitoring event.

Parameter	Analytical Method
Site-specific list of VOCs	SW846 8260B
Manganese, total and dissolved	SW846 6010B
Iron, total and dissolved	SW846 6010B
Sulfate	MCAWW 300.0
Sulfide, total	SM 4500 S2 F-2000
Total organic carbon	SW846 9060
Chlorides	SW846 9251
Ethane, ethene, methane	AM20GAX

NOTES:

1 - Site-specific list of VOCs for 2017 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: nitrate, manganese (total and dissolved), iron (total and dissolved), sulfate, sulfide, total organic carbon, chlorides, ethane, ethene, and methane.

4 - Upper aquifer monitoring well GM-32 was sampled for total organic carbon only.

5 – Upper aquifer monitoring wells were used to evaluate groundwater between the Great Miami River and Miami Shores neighborhood.

Table 2
Carbon Source Solution Introduction Volumes for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #168(1)		Injection Event #169(2)		Injection Event #170(3)		Injection Event #171(4)	
	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)
Reactive Zone 1								
RZ-1C	800	15.70	600	25.00	600	20.00	0	NA*
RZ-1D	800	28.60	1,000	24.40	1,000	25.60	800	20.00
RZ-1E	800	25.80	800	22.20	800	24.20	800	22.90
RZ-1F	800	27.60	800	24.20	800	22.90	800	25.00
RZ-1G	800	27.60	800	25.00	800	25.80	800	20.00
RZ-1H	800	20.50	800	21.60	800	13.80	800	12.50
RZ-1I	800	23.50	800	27.60	800	29.60	800	20.00
RZ-1J	800	27.60	800	28.60	800	24.20	800	22.90
RZ-1K	800	30.80	800	28.60	800	28.60	800	22.90
RZ-1L	800	29.60	800	30.80	800	28.60	800	26.70
RZ-1M	800	23.50	800	22.20	550	14.50	800	17.80
RZ-1N	800	21.10	800	21.10	1,050	23.90	800	19.50
RZ-1O	800	23.50	800	21.60	800	22.20	800	26.70
RZ-1P	800	30.80	800	23.50	800	26.70	800	22.90
RZ-1Q	800	23.50	800	9.50	800	21.10	600	40.00
RZ-1R	800	30.80	800	19.00	800	28.60	800	26.70
RZ-1S	800	26.70	800	23.50	800	22.20	800	22.90
RZ-1T	800	33.30	800	26.70	800	27.60	800	26.70
RZ-1U	800	32.00	800	28.60	800	22.20	800	26.70
Reactive Zone 1 Total Volume	15,200	NA	15,200	NA	15,200	NA	14,200	NA

NOTES:
* Injection event not completed due to molasses solution daylighting.
Carbon source introduced into each well is a 50:1 solution (potable water to molasses).
gal - gallons.
gpm - gallons per minute.
NA - Not Applicable.
(1) Injection Event #168 was completed February 7th -8th, February 10th, February 13th-17th, February 24th, February 27th-28th, March 10th, March 20th-25th, and March 30th and 31st.
(2) Injection Event #169 was completed May 25th-26th, May 30th-31st, June 6th-9th, June 15th-16th, June 21st-23rd and June 26th-30th.
(3) Injection Event #170 was completed July 12th-14th, July 24th-26th, July 31st, August 7th, August 9th-11th, August 14th-17th, August 25th, and August 28th-31st, 2017.
(4) Injection Event #171 was completed November 13th-17th, November 20th-22nd, November 27th-30th, December 1st, December 4th-8th, and December 11th-14th, 2017.

Table 2
Carbon Source Solution Introduction Volumes for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #168(1)		Injection Event #169(2)		Injection Event #170(3)		Injection Event #171(4)	
	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)
Reactive Zone 3								
RZ-3A	1,600	26.90	1,600	28.10	1,600	23.60	1,600	23.60
RZ-3B	1,600	32.00	1,600	27.30	1,600	26.30	1,600	26.70
RZ-3C	1,600	28.10	1,600	28.20	1,600	27.30	1,600	23.70
RZ-3D	800	27.60	500	15.20	400	13.80	800	21.60
RZ-3E	1,050	20.50	300	27.30	400	7.70	0	NA*
RZ-3F	1,350	19.80	1,600	22.00	1,600	20.00	1,600	22.50
RZ-3G	1,600	21.40	1,600	19.70	1,600	14.50	1,600	22.30
RZ-3H	1,600	28.10	1,600	25.40	1,600	24.00	1,600	26.70
RZ-3I	1,600	14.20	800	7.60	800	6.50	1,600	26.70
RZ-3J	1,600	29.70	1,600	30.80	1,600	26.70	1,600	24.00
RZ-3K	1,600	24.40	300	7.00	1,600	17.60	1,600	17.30
RZ-3L	1,600	30.20	1,300	29.90	1,600	29.20	1,600	16.90
RZ-3M	1,600	32.70	1,600	34.20	1,600	32.70	1,600	32.00
RZ-3N	1,600	32.10	1,600	34.10	1,600	33.40	1,600	32.00
RZ-3O	1,600	29.20	1,600	29.40	1,600	28.60	1,600	23.40
RZ-3P	1,600	27.20	1,600	28.10	1,600	23.60	1,600	26.70
RZ-3Q	1,600	30.20	1,600	34.10	1,600	27.70	1,600	24.80
RZ-3R	1,600	34.10	1,600	35.70	1,600	32.00	1,600	32.00
RZ-3S	1,600	29.70	1,600	32.80	1,600	27.70	1,600	24.80
RZ-3T	1,600	29.60	1,600	29.70	1,600	22.50	1,600	28.50
RZ-3U	1,600	32.70	1,600	31.00	1,600	30.20	1,600	30.30

NOTES:
* Injection event not completed due to molasses solution daylighting.
Carbon source introduced into each well is a 50:1 solution (potable water to molasses).
gal - gallons.
gpm - gallons per minute.
NA - Not Applicable.
(1) Injection Event #168 was completed February 7th -8th, February 10th, February 13th-17th, February 24th, February 27th-28th, March 10th, March 20th-25th, and March 30th and 31st.
(2) Injection Event #169 was completed May 25th-26th, May 30th-31st, June 6th-9th, June 15th-16th, June 21st-23rd and June 26th-30th.
(3) Injection Event #170 was completed July 12th-14th, July 24th-26th, July 31st, August 7th, August 9th-11th, August 14th-17th, August 25th, and August 28th-31st, 2017.
(4) Injection Event #171 was completed November 13th-17th, November 20th-22nd, November 27th-30th, December 1st, December 4th-8th, and December 11th-14th, 2017.

Table 2
Carbon Source Solution Introduction Volumes for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #168(1)		Injection Event #169(2)		Injection Event #170(3)		Injection Event #171(4)	
	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)
Reactive Zone 3								
RZ-3V	1,600	29.60	1,600	31.40	1,600	27.80	1,600	24.80
RZ-3W	1,600	29.60	1,600	33.40	1,600	27.70	1,600	26.70
RZ-3X	1,600	30.30	1,600	32.20	1,600	26.30	1,600	24.80
RZ-3Y	1,600	29.10	1,600	34.10	1,600	28.60	1,600	22.90
RZ-3Z	1,600	30.80	1,600	32.10	1,600	29.10	1,600	24.80
RZ-3AA	1,600	29.10	1,600	31.40	1,600	26.30	1,600	24.80
RZ-3BB	1,600	30.30	1,600	30.80	1,600	25.90	1,600	23.40
RZ-3CC	1,600	31.40	1,600	32.70	1,600	28.10	1,600	24.80
RZ-3DD	1,600	32.00	1,600	32.70	1,600	28.10	1,600	26.70
RZ-3GG	1,600	29.70	1,600	27.60	1,600	26.30	1,600	24.80
RZ-3HH	1,000	22.10	800	19.50	1,600	17.30	1,600	26.70
RZ-3II	1,400	28.50	1,600	29.70	1,600	31.00	1,600	26.70
RZ-3JJ	300	13.00	300	4.30	300	7.70	200	NA*
RZ-3KK	1,300	25.90	1,300	23.70	1,300	20.40	1,600	22.90
RZ-3RR	1,600	21.40	1,600	19.70	1,600	16.40	1,600	22.90
RZ-3SS	1,600	19.40	1,600	17.30	1,600	14.10	1,600	17.70
RZ-3TT	950	11.20	1,600	13.30	600	11.60	1,000	13.30
RZ-3UU	1,450	13.20	800	10.80	1,000	14.30	1,000	17.80
RZ-3VV	1,600	14.50	1,600	13.30	800	11.10	1,600	22.90
Reactive Zone 3 Total Volume	59,200	NA	56,000	NA	56,800	NA	59,000	NA

NOTES:
* Injection event not completed due to molasses solution daylighting.
Carbon source introduced into each well is a 50:1 solution (potable water to molasses).
gal - gallons.
gpm - gallons per minute.
NA - Not Applicable.
(1) Injection Event #168 was completed February 7th -8th, February 10th, February 13th-17th, February 24th, February 27th-28th, March 10th, March 20th-25th, and March 30th and 31st.
(2) Injection Event #169 was completed May 25th-26th, May 30th-31st, June 6th-9th, June 15th-16th, June 21st-23rd and June 26th-30th.
(3) Injection Event #170 was completed July 12th-14th, July 24th-26th, July 31st, August 7th, August 9th-11th, August 14th-17th, August 25th, and August 28th-31st, 2017.
(4) Injection Event #171 was completed November 13th-17th, November 20th-22nd, November 27th-30th, December 1st, December 4th-8th, and December 11th-14th, 2017.

Table 2
Carbon Source Solution Introduction Volumes for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #168(1)		Injection Event #169(2)		Injection Event #170(3)		Injection Event #171(4)	
	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)	Volume (gal)	Flow Rate (gpm)
Reactive Zone 4								
RZ-4A	3,000	26.20	3,000	24.50	3,000	19.70	3,000	19.80
RZ-4B	3,000	27.00	3,000	28.60	3,000	24.30	3,000	19.80
RZ-4C	3,000	26.40	3,000	28.20	3,000	20.90	3,000	20.70
RZ-4D	3,000	29.00	3,000	32.90	3,000	29.50	3,000	24.40
RZ-4E	3,000	29.50	3,000	32.50	3,000	22.60	3,000	20.20
RZ-4F	3,000	28.60	3,000	27.20	3,000	24.00	3,000	19.20
RZ-4G	2,200	28.70	3,000	31.40	3,000	19.70	3,000	17.70
RZ-4H	3,000	32.60	3,000	33.20	3,000	25.80	3,000	19.70
Reactive Zone 4 Total Volume	23,200	NA	24,000	NA	24,000	NA	24,000	NA
Quarterly Total Volumes	97,600	NA	95,200	NA	96,000	NA	97,200	NA
Annual Total Volume	386,000							

NOTES:
* Injection event not completed due to molasses solution daylighting.
Carbon source introduced into each well is a 50:1 solution (potable water to molasses).
gal - gallons.
gpm - gallons per minute.
NA - Not Applicable.
(1) Injection Event #168 was completed February 7th -8th, February 10th, February 13th-17th, February 24th, February 27th-28th, March 10th, March 20th-25th, and March 30th and 31st.
(2) Injection Event #169 was completed May 25th-26th, May 30th-31st, June 6th-9th, June 15th-16th, June 21st-23rd and June 26th-30th.
(3) Injection Event #170 was completed July 12th-14th, July 24th-26th, July 31st, August 7th, August 9th-11th, August 14th-17th, August 25th, and August 28th-31st, 2017.
(4) Injection Event #171 was completed November 13th-17th, November 20th-22nd, November 27th-30th, December 1st, December 4th-8th, and December 11th-14th, 2017.

Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Source Areas	Downgradient Reactive Zone Performance Wells					
	Units	MCL[1]	GM-23 8/17/2017 Upper Aquifer	GM-6 8/16/2017 Upper Aquifer	GM-8 8/16/2017 Upper Aquifer	GM-19S 8/16/2017 Upper Aquifer	GM-21 8/17/2017 Upper Aquifer	GM-28R 8/17/2017 Upper Aquifer	GM-29 8/17/2017 Upper Aquifer
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	9.6
1,1-Dichloroethane	ug/L		5.4	< 1.0 U	0.44 J	2.3	11	0.25 J	13
1,1-Dichloroethene	ug/L	7	1.4 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0 J
Benzene	ug/L	5	< 2.0 U	< 1.0 U	0.86 J	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
cis-1,2-Dichloroethene	ug/L	70	**580**	0.33 J	< 1.0 U	39	19	6.0	**430**
Ethylbenzene	ug/L	700	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
Tetrachloroethene	ug/L	5	**30**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.6	**11**
Toluene	ug/L	1,000	< 2.0 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	22	< 1.0 U	< 1.0 U	0.52 J	1.5	< 1.0 U	16
Trichloroethene	ug/L	5	**8.6**	< 1.0 U	< 1.0 U	1.9	2.4	0.33 J	**280**
Vinyl chloride	ug/L	2	**360**	< 1.0 U	< 1.0 U	**4.0**	**9.7**	0.72 J	**53**
Xylene (total)	ug/L	10,000	< 4.0 U	< 2.0 U	0.31 J	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U
Total Site-Specific VOCs	ug/L		1,007	0.33	1.6	48	44	12	814

NOTES:

< - Constituent not detected above laboratory reporting limit shown.

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

The QA/QC results for 2017 data are shown in Appendix D.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Closed North Settling Lagoon Monitoring Results				Closed South Settling Lagoon Monitoring Results			
			HR-4	W-2-N	W-3-N	W-4-N	HR-17	W-2-S	W-3-S	W-4-S
			8/16/2017	8/15/2017	8/15/2017	8/16/2017	8/17/2017	8/16/2017	8/16/2017	8/16/2017
	Units	MCL[1]	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	1.9	0.28 J	< 1.0 U	< 1.0 U	0.80 J	1.3	0.62 J	1.5
1,1-Dichloroethane	ug/L		2.1	< 1.0 U	< 1.0 U	6.5	0.60 J	1.1	0.66 J	2.7
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
Benzene	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
cis-1,2-Dichloroethene	ug/L	70	0.45 J	2.1	24	9.2	2.3	2.4	1.6	22
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
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	0.38 J	**150**	< 1.0 U	**68**	**39**
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
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	0.38 J	0.64 J	< 1.0 U	0.40 J	< 1.0 U	2.1
Trichloroethene	ug/L	5	< 1.0 U	1.2	< 1.0 U	**8.8**	**24**	**5.9**	**7.6**	**40**
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	1.4	< 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
Total Site-Specific VOCs	ug/L		4.5	3.6	26	26	178	11	78	107

NOTES:

< - Constituent not detected above laboratory reporting limit shown.

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

The QA/QC results for 2017 data are shown in Appendix D.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Downgradient On-Site	Off-Site Downgradient of the Site						
	Units	MCL^1	HR-1 8/17/2017 Upper Aquifer	GM-79 8/1/2017 Upper Aquifer	GM-80 8/1/2017 Upper Aquifer	GM-81 7/31/2017 Upper Aquifer	MW-5 7/31/2017 Upper Aquifer	RMW-95 8/1/2017 Upper Aquifer	RMW-96 8/2/2017 Upper Aquifer	RMW-97 8/1/2017 Upper Aquifer
Site-Specific Volatile Organic Compounds										
1,1,1-Trichloroethane	ug/L	200	1.0	0.60 J	0.32 J	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		0.39 J	2.3	0.38 J	1.1	0.89 J	0.27 J	< 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
Benzene	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
cis-1,2-Dichloroethene	ug/L	70	0.32 J	5.4	1.7	1.5	1.1 J	1.4	< 1.0 U	0.62 J
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
Tetrachloroethene	ug/L	5	**56**	4.3	**20**	< 1.0 U	< 1.0 U	0.48 J	0.95 J	3.2
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 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
Trichloroethene	ug/L	5	0.65 J	**34**	**7.5**	2	1.7 J	**5.1**	< 1.0 U	0.63 J
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
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	< 1.0 U
Total Site-Specific VOCs	ug/L		58	47	30	4.9	3.7	7.3	1.3	4.5

NOTES:

< - Constituent not detected above laboratory reporting limit shown.

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

The QA/QC results for 2017 data are shown in Appendix D.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Off-Site Downgradient of the Site			
	Units	MCL[1]	GM-15 8/16/2017 Lower Aquifer	GM-20D 8/15/2017 Lower Aquifer	GM-9 8/15/2017 Lower Aquifer	DN-13 8/15/2017 Lower Aquifer
Site-Specific Volatile Organic Compounds						
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	0.23 J	0.84 J	0.93 J
1,1-Dichloroethane	ug/L		2.1	< 1.0 U	< 1.0 U	1.5
1,1-Dichloroethene	ug/L	7	< 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
cis-1,2-Dichloroethene	ug/L	70	7.7	< 1.0 U	< 1.0 U	5.8
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	< 1.0 U	1.9	< 1.0 U	2.1
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	0.77 J	< 1.0 U	< 1.0 U	0.43 J
Trichloroethene	ug/L	5	**5.7**	1.1	**12**	**8.0**
Vinyl chloride	ug/L	2	0.58 J	< 1.0 U	< 1.0 U	0.86 J
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		17	3.2	13	20

NOTES:

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

The QA/QC results for 2017 data are shown in Appendix D.

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Table 4
DN-13 Monthly Effluent Monitoring for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Volatile Organic Compound[1]	Units	1/6/2017	2/1/2017	3/9/2017	4/10/2017	5/15/2017	6/1/2017	7/18/2017	8/10/2017	9/1/2017	10/2/2017	11/10/2017	12/7/2017
1,1,1-Trichloroethane	ug/L	0.74 J	0.72 J	0.82 J	0.60 J	0.95 J	3.9	0.75 J	0.97 J	0.94 J	0.75 J	0.93 J	0.72 J
1,1-Dichloroethane	ug/L	1.1	1.3	1.2	1.0	1.5	7.8	1.3	1.6	1.4	1.5	1.4	1.2
Benzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 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	< 5.0 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	4.6	5.2	5.2	4.1	6.0	28	5.1	6.5	5.0	5.7	5.8	4.9
Ethylbenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	1.1	1.7	1.9	1.5	2.3	7.6	2.1	2.1	1.7	1.9	1.8	0.76
Toluene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	6.2	8.4	7.8	5.8	8.1	39	7.2	9.1	7.1	7.5	7.7	6.3
Vinyl chloride	ug/L	< 1.0 U	0.67	0.69	< 1.0 U	0.46	< 5.0 U	0.72	0.84	0.63	0.69	0.69	0.79
Xylene (total)	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 10.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total VOCs	**ug/L**	**14**	**18**	**18**	**13**	**19**	**86**	**17**	**21**	**17**	**18**	**18**	**15**

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 5
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

	Surface Elevation	TOC Elevation	Well Diameter	Screened Interval				Borehole Depth	State Plane Coordinates		Geologic
Well	ft amsl	ft amsl	inches	ft bls	ft bls	ft amsl	ft amsl	ft bls	Northing, y	Easting, x	Modifiers
Upper Aquifer Wells											
W-1-N	737.61	739.02	4	35	70	702.61	667.61	70	625116.2043	1483946.9943	UA:TT
W-2-N	729.68	731.68	4	35	60	694.68	669.68	60	623865.9104	1483351.6742	UA
W-3-N	731.98	733.66	4	32	57	699.98	674.98	57	623695.8796	1483607.3111	UA
W-4-N	729.88	731.63	4	40	65	689.88	664.88	65	623651.9134	1483795.0108	UA:TT
HR-1	730.10	732.71	2	47	57	683.10	673.10	57	621967.7490	1483378.1275	UA:TT
HR-2	732.62	734.75	2	47	57	685.62	675.62	58	623649.3090	1484030.9226	UA:TT
HR-3	734.31	736.75	2	50	60	684.31	674.31	61	623612.1403	1484238.0984	UA:TT
HR-4	740.61	742.60	2	55	65	685.61	675.61	67	624582.0074	1484003.5860	UA:TT
HR-5	730.95	734.27	2	44	54	686.95	676.95	59	623354.8172	1483478.6541	UA:TT
HR-6	730.18	732.66	2	43	53	687.18	677.18	59	622588.6622	1483298.8965	UA:TT
HR-7	731.00	731.73	2	47	57	684.00	674.00	58	623373.8266	1483168.5266	UA:TT
HR-11	740.90	743.33	2	60	70	680.90	670.90	75	625682.4858	1485262.9762	UA
HR-16	724.60	727.01	4	42	62	682.60	662.60	70	621167.6648	1482171.8435	UA:TT
HR-17	725.40	726.43	4	27	47	698.40	678.40	56	621128.4488	1482780.5158	UA:TT
W-1-S	728.23	729.29	4	25	60	703.23	668.23	60	621396.0291	1482990.4046	UA:TT
W-2-S	725.01	726.64	4	30	65	695.01	660.01	65	620618.7813	1482078.7622	UA:TT
W-3-S(1)	727.17	729.17	4	36	76	691.17	651.17	76	620461.1340	1482167.2280	UA
W-4-S	726.66	727.92	4	30	70	696.66	656.66	70	620363.7630	1482551.3610	UA
GM-2(2)	NM	735.81	2	45	55	688.00	678.00	55	619586.2208	1483427.9998	UA
4S(2)	NM	731.36	4	30	65	699.00	664.00	65	619578.3226	1483129.6378	UA
GM-6(2)	727.87	729.46	2	35	45	696.00	686.00	45	619627.6172	1482930.9571	UA:TT
GM-8	732.67	734.40	2	40	50	692.67	682.67	50	619866.4552	1482965.5535	UA:TT
GM-10(2)	NM	723.90	2	40	50	681.00	671.00	50	618762.6410	1482667.7306	UA:TT
GM-16(2)	NM	725.30	2	48	58	678.00	668.00	58	619420.5576	1482149.1466	UA
GM-17(2)	NM	723.84	2	40	50	684.00	674.00	50	619311.8761	1482697.0210	UA
GM-18(2)	NM	723.80	2	45	55	679.00	669.00	55	619229.5883	1482505.4542	UA:TT
GM-19S(2)	NM	730.92	2	47	57	691.00	681.00	57	620339.5683	1483017.2551	UA:TT
GM-21	725.36	725.00	2	45	55	680.36	670.36	55	619920.5937	1483764.5951	UA:TT
GM-22	731.84	731.63	2	44	54	687.84	677.84	54	620840.4209	1484226.5683	UA:TT
GM-23(2)	NM	731.07	2	24	34	674.00	664.00	34	623699.2336	1484619.9213	UA:TUT
GM-24	747.61	747.29	2	58	68	689.61	679.61	70	625945.0802	1486991.6971	UA
GM-25	747.05	746.17	2	48	58	699.05	689.05	58	622786.2705	1486599.6865	UA:TT
GM-26	722.29	722.29	2	50	60	672.29	662.29	60	617729.9788	1482129.0695	UA
GM-27	731.03	730.57	2	40	50	691.03	681.03	58	623696.6136	1484630.7659	UA:TT

Table 5
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

	Surface Elevation	TOC Elevation	Well Diameter	Screened Interval				Borehole Depth	State Plane Coordinates		Geologic
Well	ft amsl	ft amsl	inches	ft bls	ft bls	ft amsl	ft amsl	ft bls	Northing, y	Easting, x	Modifiers
Upper Aquifer Wells											
GM-28(2)(3)	NM	736.46	2	22	32	715.00	705.00	32	623392.3799	1484436.8617	UA:TUT
GM-28R(4)	731.87	731.28	2	20	30	711.87	701.87	30.5	623340.8360	1484507.2690	UA
GM-29	731.31	731.37	2	28	38	703.31	693.31	38	623534.4471	1484535.0727	UA:TUT
GM-30(2)(5)	NM	734.79	2	28	38	707.00	697.00	38	623876.3465	1484609.5933	UA:TUT
GM-31(5)	732.05	732.13	2	51	61	681.05	671.05	62	621336.9337	1483965.1322	UA:TT
GM-32	732.47	732.08	2	51	61	681.47	671.47	51	620114.2493	1483379.9656	UA:TT
GM-33	730.30	729.77	2	48	58	682.30	672.30	58	620731.1770	1483641.4860	UA:TT
GM-34	731.06	730.56	2	26	36	705.06	695.06	36	620730.0760	1483650.2870	UA:WT
GM-35	731.56	731.27	2	57	67	674.56	664.56	70	620275.4320	1483275.5790	UA:TT
GM-36	731.44	731.11	2	25	35	706.44	696.44	35	620383.2312	1483300.8386	UA:WT
GM-37	730.36	730.05	2	46	56	684.36	674.36	56	620407.3595	1483456.0282	UA:TT
GM-38	730.31	729.88	2	24	34	706.31	696.31	34	620403.1387	1483471.6479	UA:WT
GM-43	729.41	729.00	2	40	50	689.41	679.41	54	622192.2046	1483441.3723	UA:TT
GM-44	729.30	728.77	2	51	61	678.30	668.30	62	621686.3425	1483331.5124	UA:TT
GM-45	730.03	729.75	2	50	60	680.03	670.03	60	621409.1769	1483266.9285	UA:TT
GM-46	728.13	727.79	2	19.8	29.8	708.33	698.33	29.8	623393.7601	1484777.0271	UA:TUT
GM-47	727.03	726.75	2	49.4	59.4	677.63	667.63	59.4	620060.6143	1482479.3608	UA:TT
GM-48	728.98	728.67	2	63.2	73.2	665.78	655.78	73.2	619488.4287	1481740.8154	UA:TT
GM-49	728.28	727.88	2	66.9	76.9	661.38	651.38	76.9	618643.7266	1481742.8231	UA:TT
GM-50	727.03	726.56	2	29.7	39.7	697.33	687.33	39.7	620065.0482	1482445.8840	UA:WT
GM-51	728.82	728.30	2	34.3	44.3	694.52	684.52	44.3	619465.2399	1481753.1472	UA:WT
GM-52	728.16	727.62	2	34	44	694.16	684.16	44	618604.5296	1481740.7235	UA:WT
GM-53	730.53	730.35	2	23	33	707.53	697.53	33	621184.8324	1484855.6876	UA:TT
GM-55	719.90	719.86	2	25	35	694.90	684.90	35	618008.2839	1482441.5719	UA:WT
GM-57(6)	719.41	721.40	2	25	35	694.41	684.41	35	617724.0851	1482132.1351	UA:WT
GM-59	732.46	732.25	2	25	35	707.46	697.46	35	622767.1930	1484695.7390	UA:WT
GM-60	732.46	732.24	2	42	52	690.46	680.46	52	622766.9830	1484695.8090	UA:TT
GM-62R(4)	723.15	723.51	2	50	60	NA	NA	60	620288.2230	1482671.1700	UA
GM-63	726.21	725.79	2	30	40	696.21	686.21	40	620289.0440	1482666.1930	UA:WT
GM-64	726.38	725.95	2	50	60	676.38	666.38	60	620284.6106	1482681.2885	UA:TT
GM-65S	723.94	723.58	2	42	52	681.94	671.94	52	617392.2259	1481382.4271	UA
GM-66	733.50	733.22	2	45	55	688.50	678.50	57	622780.3860	1484091.5572	UA:TT
GM-67S	732.54	732.06	2	44	54	688.54	678.54	54	623050.0533	1484547.2174	UA:TT
GM-68S	732.477	732.18	2	39.5	49.5	692.98	682.98	49.5	622326.2125	1484652.8528	UA:TT

Table 5
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Design & Consultancy
for natural and
built assets

Well	Surface Elevation	TOC Elevation	Well Diameter	Screened Interval				Borehole Depth	State Plane Coordinates		Geologic
	ft amsl	ft amsl	inches	ft bls	ft bls	ft amsl	ft amsl	ft bls	Northing, y	Easting, x	Modifiers
Upper Aquifer Wells											
GM-71	737.194	736.82	2	21	31	716.19	706.19	37	622639.9540	1485205.9130	UA:TUT
GM-72	737.05	736.78	2	52	62	685.05	675.05	67	622639.3610	1485217.5130	UA:TT
GM-74S	732.52	732.17	2	40	50	692.52	682.52	50	622444.5430	1484733.8601	UA:TT
GM-75S	738.26	737.69	2	42	52	696.26	686.26	52	622790.6745	1485039.3503	UA:TT
GM-76S	739.49	739.00	2	27	37	712.49	702.49	37	623538.7809	1485313.4176	UA:TT
GM-77S	741.49	741.14	2	33	43	708.49	698.49	43	621576.9342	1485892.0315	UA:TT
GM-78	721.58	721.18	2	40	50	681.58	671.58	70	618257.5787	1483035.5947	UA
GM-79	718.54	717.91	2	45	55	673.54	663.54	60	618970.9862	1481045.8893	UA:TT
GM-80	716.23	715.82	2	15	25	701.23	691.23	25	617951.2997	1480939.3277	UA:WT
GM-81	715.80	715.31	2	50	60	665.80	655.80	90	617934.8895	1480934.7439	UA
GM-83S	726.44	725.84	2	44	54	682.44	672.44	54	622568.7465	1482112.9569	UA:TT
RMW-89(4)	738.84	738.50	2	40.7	50.7	698.14	688.14	65	623394.9330	1484777.0130	UA
RMW-90(4)	727.44	727.05	2	43.5	53.5	683.94	673.94	100	623067.3300	1485313.5590	UA:TT
RMW-91(4)(11)	723.16	725.50	2	48	53	675.16	670.16	57	620642.1340	1482814.1830	UA:WT
RMW-92(4)(11)	723.37	725.92	2	26	36	697.37	687.37	38	620642.2440	1482803.2450	UA
RMW-93(4)(11)	724.66	727.56	2	50	60	674.66	664.66	60	620378.8040	1482440.7050	UA:TT
RMW-94(4)(11)	724.83	727.53	2	30	40	694.83	684.83	40	620379.9670	1482432.7020	UA
RMW-95(4)	716.01	715.33	2	6.3	21.3	709.71	694.71	22	619596.1990	1480976.9770	UA
RMW-96(4)	717.12	716.73	2	7.5	22.5	709.62	694.62	24	618973.8400	1481026.2050	UA
RMW-97(4)	714.84	714.21	2	9	24	705.84	690.84	24	618501.5300	1480934.2350	UA
PW-1S(4)(12)	736.18	735.76	2	36	51	700.18	685.18	54	622968.4670	1484992.4760	UA
PW-1D(4)(12)	736.18	735.81	2	51.5	56.5	684.68	679.68	60	622975.6010	1484993.9630	UA:TT
PW-2S/D(4)(12)	736.05	735.30	2	41	61	695.05	675.05	62.5	622929.6530	1484983.1820	UA:TT
PW-3S(4)(12)	736.13	735.75	2	36	41	700.13	695.13	70	622949.6170	1484987.7260	UA
PW-3D(4)(12)	736.13	735.79	2	47	57	689.13	679.13	70	622949.3510	1484987.8520	UA:TT
PW-4S(4)(12)	736.17	735.73	2	37	47	699.17	689.17	50	622964.5560	1484989.6620	UA
PW-4D(4)(12)	736.18	735.67	2	50	55	686.18	681.18	55	622971.9500	1484991.3960	UA:TT
PW-5S(4)(12)	735.99	735.52	2	39	49	696.99	686.99	63	622919.2550	1484979.0620	UA
PW-5D(4)(12)	735.99	735.62	2	56	61	679.99	674.99	63	622919.0190	1484979.3390	UA:TT
PW-6S(4)(12)	731.35	731.08	2	25	35	706.35	696.35	35	622831.4210	1484839.3060	UA
PW-6D(4)(12)	731.35	731.04	2	40	50	691.35	681.35	63.5	622837.3590	1484840.7790	UA:TT
EW-1(4)(11)	724.95	726.97	8	40	60	684.95	664.95	63	620405.0250	1482238.8630	UA:TT
EW-2(4)(11)	725.26	726.74	8	39.5	59.5	685.76	665.76	63	620369.7470	1482502.1140	UA:TT
EAST	NM	730.98	2	NA	NA	NA	NA	71	620545.6947	1483674.2190	UA:TT

Table 5
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Surface Elevation	TOC Elevation	Well Diameter	Screened Interval				Borehole Depth	State Plane Coordinates		Geologic
	ft amsl	ft amsl	inches	ft bls	ft bls	ft amsl	ft amsl	ft bls	Northing, y	Easting, x	Modifiers
Upper Aquifer Wells											
WEST	NM	731.08	2	NA	NA	NA	NA	52	620509.6228	1483299.0985	UA:TT
WSU-17	726.93	726.18	2	11.69	66.9	715.24	659.28	67	619558.2279	1482898.5384	UA:TT
WSU-18	734.18	733.52	2	29.2	69.2	704.98	664.32	69	619554.9290	1483096.6469	UA:TT
WSU-19	727.28	726.62	2	33.4	63.4	693.88	663.22	63	619736.8872	1482880.3995	UA:TT
WSU-22	726.21	726.49	2	NA	NA	NA	NA	52	620311.4363	1482687.2293	UA:TT
WSU-23	724.65	724.90	2	NA	NA	NA	NA	58	620381.0854	1481978.6336	UA:TT
WSU-24	725.10	724.82	2	NA	NA	NA	NA	66	619124.1425	1483169.1107	UA:TT
TW-2(2)	NM	733.38	10	35	45	696.00	686.00	45	619568.4036	1482942.6663	UA:TT
ME-2(5)	731.60	731.28	2	27	37	704.60	694.60	37	621327.2669	1484014.6258	UA:WT
ME-3(5)	732.23	731.73	2	29	39	703.23	693.23	39	621288.3532	1483969.5620	UA:WT
ME-4(5)	732.05	732.24	2	26	36	706.05	696.05	36	621321.4422	1483952.3693	UA:WT
ME-6(5)	733.09	732.68	2	29	39	704.09	694.09	39	621706.9517	1484057.0461	UA:WT
MW-1(7)	713.60	715.53	2	61.2	71.2	652.40	642.40	71.7	621420.6144	1480209.1127	UA:TT
MW-4(7)	707.45	707.19	2	19.6	39.6	687.85	667.85	40	619035.3250	1478050.0733	UA
MW-5(7)	709.59	709.34	2	22.5	42.5	687.09	667.09	43	618787.9839	1478971.6197	UA
MW-9(7)	713.16	712.85	2	63	73	650.16	640.16	73.5	617169.4849	1478747.1452	UA
GM-1	NM	735.74	2	90	100	NA	NA	100	619570.7118	1483421.8130	LA
GM-3	NM	730.44	2	90	100	NA	NA	100	619621.9727	1482926.3542	LA
GM-4	NM	731.46	2	140	150	NA	NA	150	619602.7099	1482922.7333	LA
GM-5	NM	731.29	2	90	100	NA	NA	100	619588.6213	1483126.6107	LA
GM-7R	NM	735.61	2	80	90	NA	NA	91	619863.8298	1482962.1340	LA
GM-9	NM	724.07	2	90	100	NA	NA	100	618771.8670	1482674.1902	LA
GM-11	NM	723.71	2	90	100	NA	NA	100	619318.6270	1482694.0524	LA

Table 5
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

	Surface Elevation	TOC Elevation	Well Diameter	Screened Interval				Borehole Depth	State Plane Coordinates		Geologic
Well	ft amsl	ft amsl	inches	ft bls	ft bls	ft amsl	ft amsl	ft bls	Northing, y	Easting, x	Modifiers
Lower Aquifer Wells											
GM-13	NM	723.82	2	90	100	NA	NA	100	619239.1943	1482501.6168	LA
GM-14	NM	723.50	2	140	150	NA	NA	150	619244.0886	1482515.5184	LA
GM-15	NM	725.23	2	90	100	NA	NA	100	619427.7004	1482156.5128	LA
GM-19D	727.90	729.40	4	145	150	NA	NA	150	620339.8625	1483063.5273	LA
GM-20D	NM	727.26	4	87	92	NA	NA	92	619177.7271	1483236.8889	LA
GM-39	731.15	730.95	2	106	116	625.15	615.15	116	623705.5364	1484609.0626	LA
GM-40	727.28	727.04	2	140	150	587.28	577.28	150	621693.8055	1483084.8121	LA
GM-41	731.22	733.65	2	104	114	627.22	617.22	114	621635.7801	1484818.4021	LA
GM-42	729.48	729.16	2	140	150	589.48	579.48	150	620810.1968	1483562.5296	LA
GM-54	730.51	730.29	2	70	80	660.51	650.51	80	621182.1891	1484848.6752	LA
GM-56	719.75	719.52	2	75	85	644.75	634.75	85	618006.1752	1482448.5647	LA:NTP
GM-58	735.59	735.46	2	72	82	663.59	653.59	82	621541.9882	1485308.7468	LA:BT
GM-61	732.48	732.23	2	70	80	662.48	652.48	80	622762.6947	1484707.4691	LA:BT
GM-65D	723.83	723.54	2	85	95	638.83	628.83	108	617389.5183	1481380.4746	LA:NTP
GM-67D	731.93	731.45	2	70	80	661.93	651.93	121	623053.5624	1484533.4779	LA:BT
GM-68D	732.46	732.27	2	64	74	668.46	658.46	150	622327.5383	1484645.8862	LA:BT
GM-69	732.42	732.08	2	90	100	642.42	632.42	140	621314.8199	1484401.6371	LA
GM-70	737.47	737.19	2	72	82	665.47	655.47	120	621944.0370	1485505.8829	LA
GM-73	737.34	736.97	2	85	95	652.34	642.34	120	622635.9765	1485216.5022	LA
GM-74D	732.49	732.04	2	69	79	663.49	653.49	120	622450.0123	1484735.6502	LA:BT
GM-75D	738.13	737.68	2	85	95	653.13	643.13	120	622793.2406	1485027.5873	LA
GM-76D	739.48	738.94	2	70	80	669.48	659.48	120	623535.2043	1485312.4245	LA:BT
GM-77D	741.52	740.93	2	75	85	666.52	656.52	100	621574.4283	1485889.3662	LA:BT
GM-82	732.55	732.14	2	85	95	647.55	637.55	119.5	621972.7146	1484304.7894	LA
GM-83D	726.41	725.77	2	110	120	616.41	606.41	120	622568.1953	1482120.4685	LA
GM-84	740.44	739.92	2	96.5	106.5	643.94	633.94	120	620619.4561	1485522.1487	LA:BT
RMW-85(8)	736.28	736.65	2	85	95	651.28	641.28	105	622914.0083	1484978.1674	LA
RMW-86(8)	728.85	729.22	2	70	80	658.85	648.85	105	620409.7071	1483253.2715	LA:BT
RMW-87(8)	727.69	728.01	2	67	77	660.69	650.69	100	621671.6198	1483277.4116	LA:BT
RMW-88(4)	738.42	738.25	2	90	100	648.42	638.42	100	625051.9881	1484580.6683	LA

Table 5
Groundwater Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

	Surface Elevation	TOC Elevation	Well Diameter	Screened Interval				Borehole Depth	State Plane Coordinates		Geologic
Well	**ft amsl**	**ft amsl**	**inches**	**ft bls**	**ft bls**	**ft amsl**	**ft amsl**	**ft bls**	**Northing, y**	**Easting, x**	**Modifiers**
Lower Aquifer Wells											
HR-12	741.00	742.64	4	120	130	621.00	611.00	130	625702.3993	1485250.0490	LA
HR-13	733.20	735.03	4	75	85	658.20	648.20	85	623616.8315	1484215.3411	LA:BT
HR-14	729.90	731.63	4	78	88	651.90	641.90	88	623675.4267	1483782.2839	LA
HR-15	732.10	733.74	4	88	98	644.10	634.10	98	623712.7941	1483595.9072	LA
M73C	NM	716.55	NA	NA	NA	NA	NA	NA	618973.2537	1482114.3309	LA
MT69(9)	719.84	722.71	8	NA	NA	NA	NA	158	617749.1907	1482121.3945	LA
MT576M	750.00	751.46	5	NA	NA	NA	NA	114	622940.2909	1487799.4686	LA
MT596M(10)	759.18	757.73	5	NA	NA	NA	NA	89	624057.1091	1488849.1418	LA
DN-13	724.09	727.54	20	110	170	614.09	554.09	170	619197.5730	1482251.6120	LA
11B	744.50	742.56	NA	NA	NA	NA	NA	158	622501.4801	1485799.6814	LA
A	NM	739.00	20	155	205	NA	NA	205	624325.4108	1484805.7949	LA
31	NM	734.05	20	90	122	NA	NA	122	623727.4107	1485049.2752	LA
34	NM	733.46	20	107	140	NA	NA	140	622178.4664	1485017.7925	LA
39	NM	732.07	20	117	142	NA	NA	145	623442.4628	1484987.5777	LA
44	733.91	734.62	24	128	166	605.91	567.91	NA	624519.7322	1483988.8824	LA
FW-1A	NM	739.89	24	105	166	NA	NA	169	625357.5160	1486090.3366	LA
FW-2	NM	737.48	20	NA	150	NA	NA	160	622516.4369	1485616.6642	LA
FW-3	NM	739.26	20	NA	141	NA	NA	200	622675.0394	1484968.9430	LA
FW-4	NM	731.62	14	NA	136	NA	NA	160	620605.0473	1484338.1137	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.

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) - Elevations estimated.
(3) - Well flush mount damaged and obstructed at depth.
(4) - Wells installed after 2011 are surveyed to the Ohio South State Plan coordinate system and the North American Vertical Datum of 1988 (NAVD 88).
(5) - Depth of screened interval and total well depth have been modified from the well log due to site construction.
(6) - Well above grade construction damaged in 2011.
(7) - City of Moraine Monitoring Wells.
(8) - TOC elevation is calculated based on adjacent well elevations and field measurements on November 26, 2012.
(9) - Well unusable - collapsed screen.
(10) - Measuring point is top of cement housing.
(11) - Wells were installed for the Dynamic Groundwater Recirculation (DGR™) Pilot Test in late Summer 2017. Data collected from these wells will be presented in a forthcoming report.
(12) - Wells were installed for the Enhanced Reductive Dechlorination (ERD) Pilot Test in the Fall 2017. Data collected from these wells will be presented in a forthcoming report.

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 6
Groundwater Level Measurements Collected During 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Measuring Point Elevation (feet AMSL)	Depth-to-Water (feet)	Total Depth (feet)	Groundwater or Surface Water Elevation (feet AMSL)
Upper Aquifer Wells				
W-1-N	739.02	28.93	70.00	710.09
W-2-N	731.68	21.90	59.70	709.78
W-3-N	733.66	23.86	57.60	709.80
W-4-N	731.63	21.78	66.60	709.85
HR-1	732.71	23.72	59.00	708.99
HR-2	734.75	24.83	58.70	709.92
HR-3	736.75	27.80	62.20	708.95
HR-4	742.60	32.41	66.80	710.19
HR-5	734.27	24.58	57.80	709.69
HR-6	732.66	23.55	55.45	709.11
HR-7	731.73	22.19	57.40	709.54
HR-11	743.33	32.68	69.10	710.65
HR-16	727.01	18.73	65.00	708.28
HR-17	726.43	17.82	59.55	708.61
W-1-S	729.29	20.45	59.55	708.84
W-2-S	726.64	18.86	67.00	707.78
W-3-S	729.17	21.29	76.40	707.88
W-4-S	727.92	19.73	72.50	708.19
GM-2	735.81	27.46	56.30	708.35
4S	731.36	23.32	68.40	708.04
GM-6	730.27	19.96	46.30	710.31
GM-8	735.17	27.33	50.00	707.84
GM-10	723.90	16.30	50.20	707.60
GM-16	725.30	17.82	58.00	707.48
GM-17	723.84	16.10	50.05	707.74
GM-18	723.80	16.21	54.86	707.59
GM-19S	730.92	22.52	57.00	708.40
GM-21	725.00	16.41	53.30	708.59
GM-22	731.63	22.32	57.20	709.31
GM-23	731.07	21.01	32.20	710.06
GM-24[3]	747.29	NM	68.05	NM
GM-25[3]	746.17	NM	58.00	NM
GM-26	722.29	15.09	58.40	707.20
GM-27	730.57	20.50	47.10	710.07
GM-28R[1]	731.28	22.18	32.00	709.10
GM-29	731.37	21.22	32.60	710.15
GM-30	734.79	24.85	36.00	709.94
GM-31[2]	732.13	NM	63.20	NM
GM-32	732.08	23.64	56.50	708.44
GM-33	729.77	20.94	54.30	708.83
GM-34	730.56	21.70	35.25	708.86
GM-35	731.27	22.89	65.40	708.38
GM-36	731.11	22.61	34.45	708.50

Table 6
Groundwater Level Measurements Collected During 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Measuring Point Elevation (feet AMSL)	Depth-to-Water (feet)	Total Depth (feet)	Groundwater or Surface Water Elevation (feet AMSL)
Upper Aquifer Wells				
GM-37	730.05	21.27	34.25	708.78
GM-38	729.88	21.45	56.10	708.43
GM-43	729.00	19.93	49.70	709.07
GM-44	728.77	19.96	60.90	708.81
GM-45	729.75	20.35	60.00	709.40
GM-46	727.79	15.12	27.70	712.67
GM-47	726.75	19.03	59.40	707.72
GM-48	728.67	21.45	73.02	707.22
GM-49	727.88	21.05	76.29	706.83
GM-50	726.56	18.85	39.50	707.71
GM-51	728.30	21.20	44.20	707.10
GM-52	727.62	20.77	44.00	706.85
GM-53	730.35	21.06	32.55	709.29
GM-55	719.86	12.62	35.10	707.24
GM-57	721.74	15.30	35.00	706.44
GM-59	732.25	22.54	34.40	709.71
GM-60	732.24	22.52	50.40	709.72
GM-62R[1]	723.51	16.30	60.70	707.21
GM-63	725.79	17.81	39.10	707.98
GM-64	725.95	17.99	58.50	707.96
GM-65S	723.58	17.17	52.10	706.41
GM-66	733.22	23.71	54.20	709.51
GM-67S	732.06	22.30	53.60	709.76
GM-68S	732.18	22.57	49.90	709.61
GM-71	736.82	26.99	61.40	709.83
GM-72	736.78	26.95	32.10	709.83
GM-74S	732.17	22.47	49.50	709.70
GM-75S	737.69	27.88	51.80	709.81
GM-76S	739.00	28.67	36.80	710.33
GM-77S	741.14	31.28	42.69	709.86
GM-78	721.18	13.39	49.40	707.79
GM-79	717.91	11.31	54.20	706.60
GM-80	715.82	9.68	24.50	706.14
GM-81	715.31	9.06	60.36	706.25
GM-83S	725.84	16.59	53.80	709.25
RMW-89[1,2]	738.56	NM	50.30	NM
RMW-90[1]	727.41	17.82	54.15	709.59
RMW-95[1]	715.33	9.39	NM	705.94
RMW-96[1]	716.73	11.03	NM	705.70
RMW-97[1]	714.21	8.73	NM	705.48
EAST	730.98	22.15	71.30	708.83
WEST	731.08	22.44	51.40	708.64
WSU-17	726.18	19.18	46.25	707.00
WSU-18	733.52	25.52	61.20	708.00
WSU-19	726.62	20.29	63.10	706.33
WSU-22[4]	Damaged	NM	NM	NM
WSU-23	724.90	17.29	57.40	707.61
WSU-24	724.82	16.70	66.55	708.12
TW-2	733.38	25.51	46.00	707.87
ME-2	732.08	25.51	NM	706.57
ME-3[2]	731.73	NM	NM	NM
ME-4[2]	732.24	NM	NM	NM
ME-6[2]	732.68	NM	NM	NM

Table 6
Groundwater Level Measurements Collected During 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Measuring Point Elevation (feet AMSL)	Depth-to-Water (feet)	Total Depth (feet)	Groundwater or Surface Water Elevation (feet AMSL)
Lower Aquifer Wells				
GM-1	735.74	27.71	103.40	708.03
GM-3	730.44	18.50	102.20	711.94
GM-4	731.46	18.30	139.50	713.16
GM-5	731.29	23.58	102.00	707.71
GM-7R	735.61	27.68	93.20	707.93
GM-9	724.07	16.78	99.60	707.29
GM-11	723.71	16.50	99.20	707.21
GM-13	723.82	16.98	100.10	706.84
GM-14	723.50	16.72	150.00	706.78
GM-15	725.23	18.67	98.90	706.56
GM-19D	730.73	22.40	148.00	708.33
GM-20D	727.26	19.04	100.80	708.22
GM-39	730.95	20.91	118.40	710.04
GM-40	727.04	18.74	150.30	708.30
GM-41	733.65	24.34	16.30	709.31
GM-42	729.16	20.93	152.30	708.23
GM-54	730.29	20.91	80.00	709.38
GM-56	719.52	12.35	86.44	707.17
GM-58	735.46	25.79	82.00	709.67
GM-61	732.23	22.52	78.94	709.71
GM-65D	723.54	17.14	96.51	706.40
GM-67D	732.19	22.43	79.20	709.76
GM-68D	732.27	22.72	70.80	709.55
GM-69	732.08	23.05	100.79	709.03
GM-70	737.19	27.34	81.80	709.85
GM-73	736.97	27.05	96.50	709.92
GM-74D	732.04	22.44	80.21	709.60
GM-75D	737.68	27.72	94.30	709.96
GM-76D	738.94	28.70	80.10	710.24
GM-77D	740.93	31.00	86.30	709.93
GM-82	732.14	22.92	96.87	709.22
GM-83D	725.77	17.53	119.70	708.24
GM-84	739.92	30.58	106.80	709.34
RMW-85[5]	736.65	26.65	94.40	710.00
RMW-86[5]	729.22	21.18	80.10	708.04
RMW-87[5]	728.01	18.46	76.10	709.55
RMW-88[1]	738.25	28.62	102.70	709.63
HR-12	742.64	31.99	134.61	710.65
HR-13	735.03	25.07	87.00	709.96
HR-14	731.63	21.92	91.20	709.71
HR-15	733.74	24.19	102.20	709.55
M73C	716.55	9.70	NM	706.85
MT576M	751.46	40.28	NM	711.18
MT596M	757.73	40.74	NM	716.99

Table 6
Groundwater Level Measurements Collected During 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Measuring Point Elevation (feet AMSL)	Depth-to-Water (feet)	Total Depth (feet)	Groundwater or Surface Water Elevation (feet AMSL)
Production and Fire Wells				
DN-13 (County Well) [ON] *	727.78	55.02	170.00	672.76
11B	742.56	32.03	NM	710.53
31	734.05	22.35	122.00	711.70
34	733.46	23.89	NM	709.57
39	732.07	23.60	142.00	708.47
A	739.00	27.28	NM	711.72
FW-1A	739.89	NM	NM	NM
FW-2[2]	737.48	27.45	NM	710.03
FW-3[2]	739.26	29.39	NM	709.87
FW-4[2]	731.62	22.98	NM	708.64
Stream Gauge**				
SG1	747.64	42.74	NA	704.90
SG2	709.95	NM	NA	NM
SG3	718.45	6.98	NA	711.47
SG4	714.78	6.07	NA	708.71
SG5	711.10	1.64	NA	709.46
SG6	723.21	15.71	NA	707.50
SG7	731.55	14.51	NA	717.04
IRZ Wells				
RZ-1D	731.20	21.05	NM	710.15
RZ-3F*	728.54	27.39	NM	701.15
RZ-3N*	729.99	18.70	NM	711.29
RZ-3MM	726.92	18.49	48.96	708.43
RZ-4A	725.71	15.61	55.10	710.10
RZ-4D	727.07	17.56	53.90	709.51
RZ-4G	728.16	19.58	NM	708.58
RZ-4O	726.46	18.39	NM	708.07
Moraine City				
MW-1	715.53	NM	NM	NM
MW-4	707.19	4.79	NM	702.40
MW-5	709.34	4.98	NM	704.36
MW-9	712.85	9.48	NM	703.37

NOTES:

* - Data not used for potentiometric surface contouring. Anomalous water level elevations that are not used for contour may be due factors, such as field transcription errors, top of casing survey inconsistencies, surface subsidence, etc.

** - Surface water measurement. Data not used for potentiometric surface contouring - posted for informational purposes.

[1] - Wells installed after 2011 are surveyed to the Ohio South State Plane coordinate system and the North American Vertical Datum (NAVD 88). Data not used for potentiometric surface contouring - posted for informational purposes.

[2] - Access to well location restricted.

[3] - Well could not be located.

[4] - Well damaged.

[5] - Well location estimated by field measurements collected on November 26, 2012 from known surveyed points. Vertical elevation correlated to nearby wells surveyed to NGVD 29 vertical datum.

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

Groundwater levels were measured on October 11 and 12, 2017 using electronic water level indicators.

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

Measuring point is to 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. Base map and well coordinates were converted in 2011 to the Ohio South State Plane coordinate system and NGVD 29 was retained as the vertical datum.

Table 7
Summary of Precipitation Measurements Recorded by the National Weather Service during 2017 – Dayton, Ohio
RACER Trust Moraine Facilities
Moraine, Ohio

Month	Actual Precipitation	Average Precipitation[1]	Departure from Average
January	3.42	2.92	0.50 Above
February	1.52	2.29	0.77 Below
March	4.95	3.50	1.45 Above
April	5.46	3.56	1.90 Above
May	6.50	3.90	2.60 Above
June	7.43	3.94	3.49 Above
July	4.80	3.59	1.21 Above
August	3.03	3.00	0.03 Above
September	2.16	2.85	0.69 Below
October	4.00	2.55	1.45 Above
November	6.02	2.88	3.14 Above
December	1.54	2.80	1.26 Below
2017 Total	**50.83**	**37.86**	**12.97 Above**

NOTES:
Precipitation measurements are reported in inches.
1: Average precipitation information was obtained from the NOAA Website (http://w2.weather.gov/climate/xmacis.php?wfo=iln). It is to be noted that the average precipitation total taken from the NOAA Website, does not equal the cumulative average monthly precipitation data reported above. This is likely due to rounding.

Table 8
Horizontal Gradients for Upper/Lower Aquifer Well Pairs in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Horizontal Gradients - October 11 and 12, 2017	ft./ft.
W-2-N/W-1-S	3.8E-04
W-3-N/HR-1	4.6E-04
HR-5/HR-1	5.2E-04
HR-4/HR-1	5.0E-04
HR-7/W-1-S	3.5E-04
HR-5/W-1-S	4.3E-04
HR-1/GM-16	5.4E-04
GM-75S/GM-68S	3.4E-04
GM-53/4S	5.2E-04
Average Hydraulic Gradient for Upper Aquifer Wells	**4.5E-04**
GM-58/GM-20D	4.6E-04
GM-54/GM-1	6.3E-04
HR-15/GM-83D	7.0E-04
Average Hydraulic Gradient for Lower Aquifer Wells	**6.0E-04**

NOTE:

ft. - feet.

Table 9
Vertical Gradients for Upper/Lower Aquifer Well Pairs in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

Vertical Gradients - October 11 and 12, 2017		
Upper/Lower Aquifer Wells	**Direction**	**Gradient (ft./ft.)**
Upgradient		
HR-11/HR-12	-	0
On-Site		
W-3-N/HR-15	D	-5.2E-03
GM-2/GM-1	D	-7.1E-03
4S/GM-5	D	-6.9E-03
GM-75S/GM-75D	U	+3.5E-03
Off-Site/Downgradient		
GM-10/GM-9	D	-6.2E-03
GM-16/GM-15	D	-2.2E-02
GM-18/GM-13	D	-1.7E-02
GM-17/GM-11	D	-1.1E-02
GM-55/GM-56	D	-1.5E-03
GM-65S/GM-65D	D	-2.3E-04

NOTES:

D - Downward gradient (-).

ft. - feet.

U - Upward gradient (+).

Upper/lower aquifer well pairs in the vicinity of DN-13 are GM-10/GM-9, GM-16/GM-15, GM-18/GM-13, and GM-17/GM-11.

Table 10
Focused Off-Site Vapor Intrusion Groundwater Screening Results
RACER Trust Moraine Facilities
Moraine, Ohio

			RMW-95	RMW-96	RMW-97	GM-79	GM-80	GM-81	DUP-01[2]	MW-5
	Units	U.S. EPA Site Specific VISL[1]	8/1/2017	8/2/2017	8/1/2017	8/2/2017	8/1/2017	8/2/2017	7/31/2017	7/31/2017
Site-Specific Volatile Organic Compounds										
1,1,1-Trichloroethane	ug/L	9,900	<1.0	<1.0	<1.0	0.60 J	0.32 J	0.26 J	0.27 J	<1.0 F2
1,1-Dichloroethane	ug/L	100	0.27 J	<1.0	<1.0	2.3	0.38 J	1.1	1.1	0.89 J F2 F1
1,1-Dichloroethene	ug/L	250	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0 F2 F1
Benzene	ug/L	21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0 F2 F1
cis-1,2-Dichloroethene	ug/L	NL	1.4	<1.0	0.62 J	5.4	1.7	1.5	1.5	1.1 F2 F1
Ethylbenzene	ug/L	50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	ug/L	82	0.48 J	0.95 J	3.2	4.3	20	<1.0	<1.0	<1.0
Toluene	ug/L	27,000	<1.0	0.31 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	ug/L	NL	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0 F2 F1
Trichloroethene	ug/L	7.1	5.1	<1.0	0.63 J	**34**	**7.5**	2.0	2.0	1.7 F2
Vinyl chloride	ug/L	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0 F2
Xylene (total)	ug/L	560	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0 F2

NOTES:

1 - U.S. EPA VISL Calculator Version 3.5.1, May 2016 RSLs were used to calculate target residential screening levels for groundwater concentrations based on a site specific groundwater temperature of 18.65 degrees Celsius and the lower of either a target cancer risk of 1E-05 or a target hazard index of 1. Screening levels assume a 26 year exposure duration, 350 days per year, 24 hours per day. The input parameters were the same as the default U.S. parameters with a site-specific groundwater temperature that was based on a 95% upper confidence level of groundwater temperatures from water table well GM-80 from 2010 to 2016.

2 - The parent sample associated with the duplicate (DUP-01) was sample GM-81

< - Constituent not detected above laboratory reporting limit shown

BOLD - Result above U.S. EPA site-specific VISL

F1 - Matrix spike and/or matrix spike duplicate recovery is outside acceptance limits

F2 - Matrix spike/matrix spike duplicate exceeds control limits

J - Value is estimated

NA - Not available

NL - No site-specific VISL

RSLs - Regional Screening Levels

ug/L - Micrograms per Liter

U.S. EPA - United States Environmental Protection Agency

VISL - Vapor Intrusion Screening Levels

VOCs - Volatile Organic Compounds

Table 11
Lower Aquifer Triangular Irregular Network Horizontal Hydraulic Gradients in 2017
RACER Trust Moraine Facilities
Moraine, Ohio

TIN Cell	Monitoring Well Groundwater Elevations (ft. AMSL)			Hydraulic Gradient	Flow Direction Azimuth (degrees)
TIN A	GM-1	GM-5	GM-20D	1.4E-03	313
	708.03	**707.71**	**708.22**		
TIN B	GM-5	GM-20D	GM-14	2.1E-03	291
	707.71	**708.22**	**706.78**		
TIN C	GM-14	GM-20D	GM-9	2.0E-03	282
	706.78	**708.22**	**707.29**		
TIN D	GM-9	GM-14	M73C	1.0E-03	334
	707.29	**706.78**	**706.85**		
TIN E	GM-5	GM-14	GM-15	1.0E-03	231
	707.71	**706.78**	**706.56**		

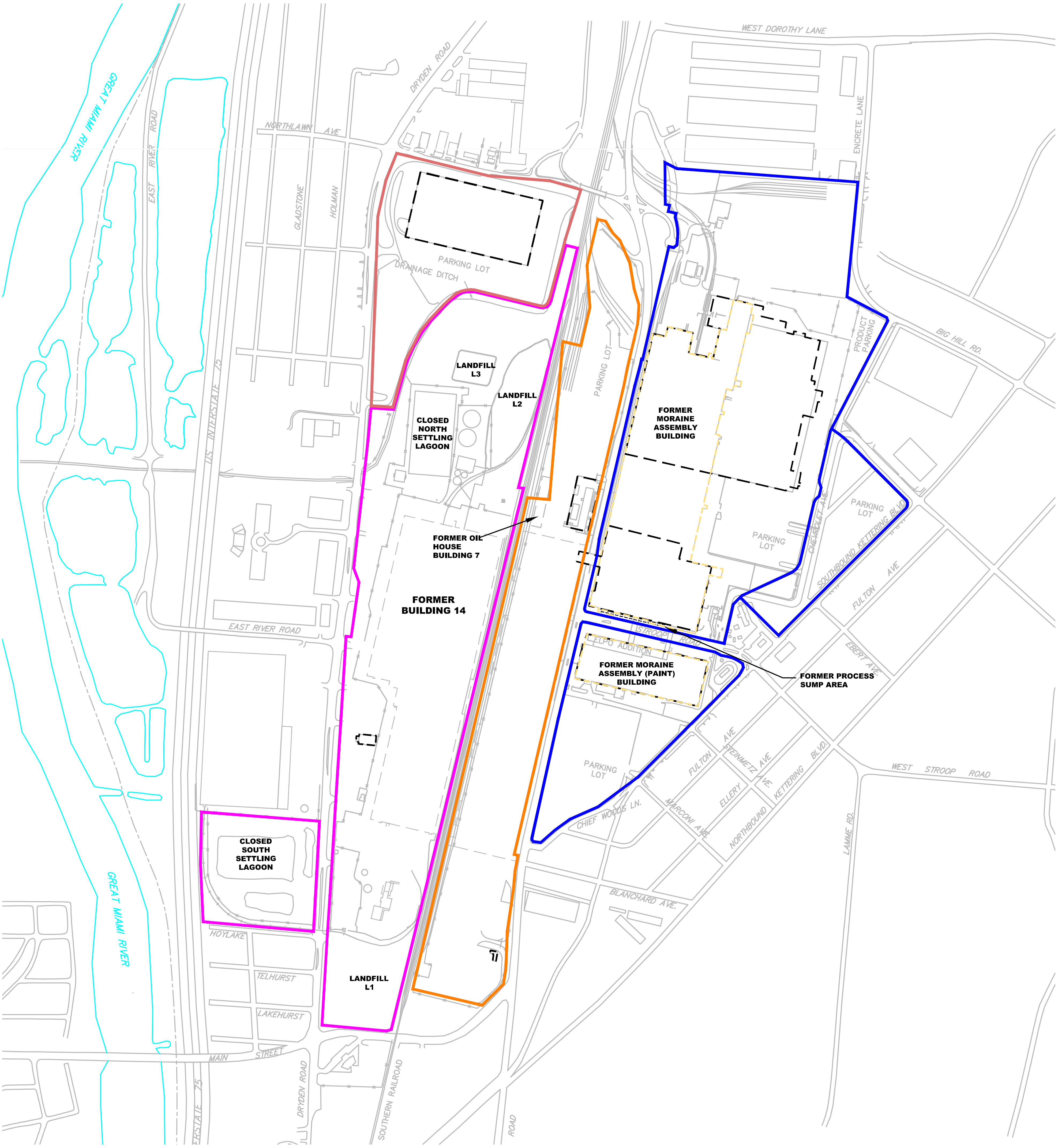
NOTES:

AMSL - Above Mean Sea Level.

ft. - feet.

TIN - Triangular irregular network.

FIGURES



LEGEND

— · —	RIVER LEVEE
– – –	FORMER BUILDING FOOTPRINT
– – –	CURRENT BUILDING FOOTPRINT
——	SURFACE WATER FEATURE
——	FORMER DELPHI HARRISON THERMAL SYSTEMS, MORAINE PLANT PROPERTY BOUNDARY
——	FORMER GENERAL MOTORS POWERTRAIN GROUP, MORAINE ENGINE PLANT PROPERTY BOUNDARY
——	FORMER GENERAL MOTORS TRUCK GROUP, MORAINE ASSEMBLY PLANT PROPERTY BOUNDARY
——	GENERAL MOTORS LLC, DMAX
- - - -	FORMER MORAINE ASSEMBLY BUILDINGS

N

0 200 1000ft

RACER TRUST
MORAINE, OHIO

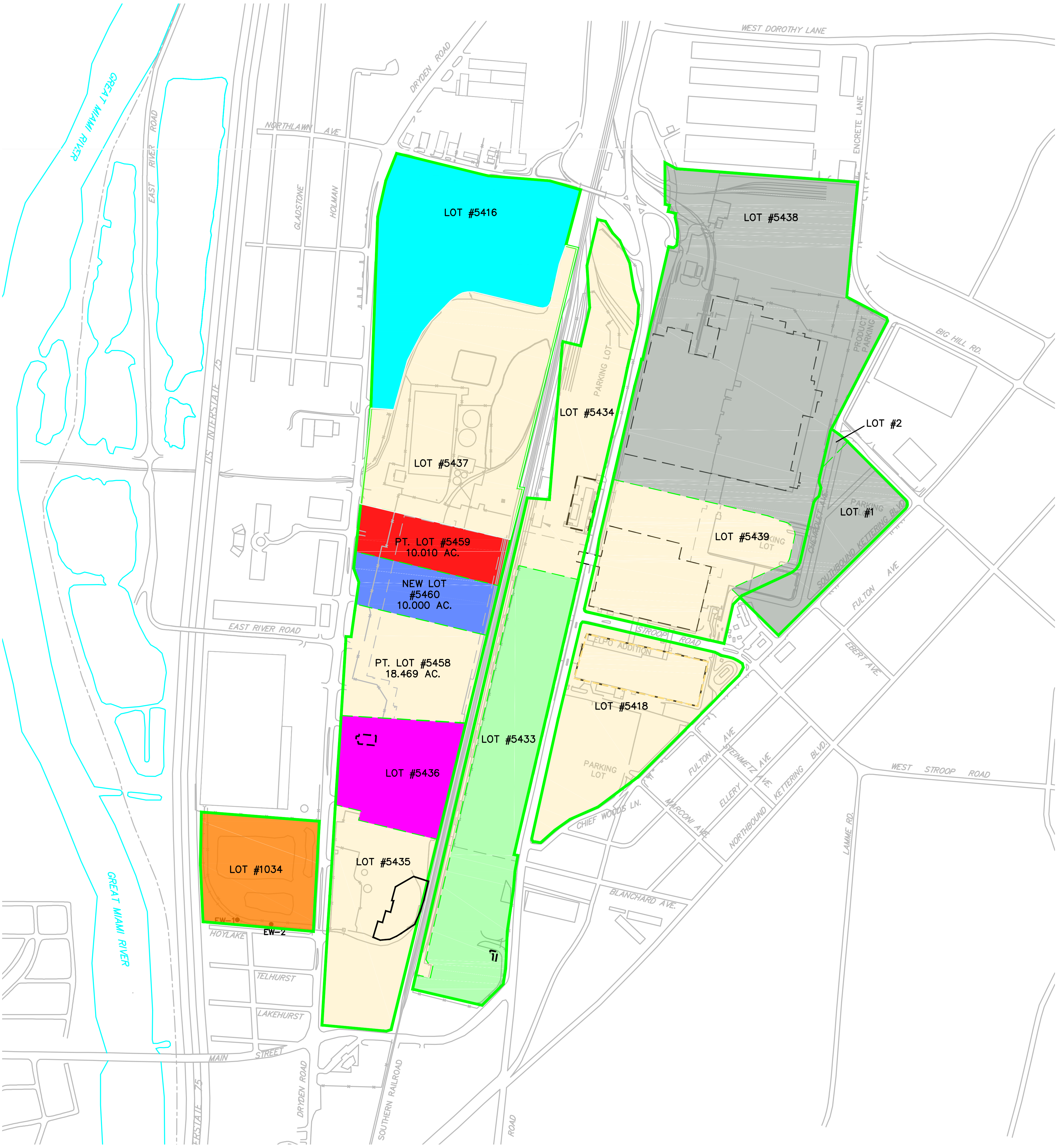
OH000294.2018

SITE LAYOUT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY:COLUMBUS, OH DIV/GROUP:IM/DV DB:R. SMITH LD:(Opt) PIC:(Opt) PM:J. MANZO TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF
C:\Users\bsmith\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-PARCEL MAP.dwg LAYOUT: PARCEL MAP SAVED: 2/8/2018 9:40 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/8/2018 9:45 AM BY: SMITH, BOB

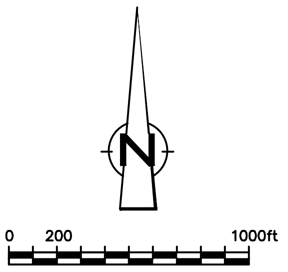


LEGEND

- — · — RIVER LEVEE
- ▬ ▬ FORMER BUILDING FOOTPRINT
- ▬ ▬ CURRENT BUILDING FOOTPRINT
- —— SURFACE WATER FEATURE
- —— PROPERTY BOUNDARY
- — — PARCEL BOUNDARY

LOT INFORMATION		
LOT NUMBER	ACERAGE	LOT OWNER
LOT #1	15.568 Ac.	FUYAO ASSET MANAGEMENT A LLC
LOT #2	0.5585 Ac.	FUYAO ASSET MANAGEMENT A LLC
LOT #5438	94.060 Ac.	FUYAO ASSET MANAGEMENT A LLC
LOT #5418	31.576 Ac.	IRG MORAINE LLC
LOT #5434	32.278 Ac.	IRG MORAINE LLC
LOT #5435	25.020 Ac.	IRG MORAINE LLC
LOT #5437	47.065 Ac.	IRG MORAINE LLC
LOT #5439	30.580 Ac.	IRG MORAINE LLC
LOT #5458	18.469 Ac.	IRG MORAINE LLC
LOT #1034	18.174 Ac.	RACER PROPERTIES LLC
LOT #5433	41.145 Ac.	COPART OF CONNECTICUT INC.
LOT #5436	17.030 Ac.	INLAND PROPERTY MANAGEMENT INC. (RJ TRUCKING)
LOT #5416	38.612 Ac.	DMAX LTD
LOT #5459	10.010 Ac.	WRIGHT WAREHOUSE INC.
LOT #5460	10.000 Ac.	STATE OF OHIO

NOTE:
LOT INFORMATION WAS CHECKED ON 2/7/18 AT
HTTP://ENGINEER.GOMVO.ORG/APPS/LANDRECORDS/



RACER TRUST
MORAINE, OHIO

OH000294.2017

SITE PARCEL MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

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\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-SW-WELL-LOC.dwg LAYOUT: FIG SITEWIDE-C-M-ALL WELLS SAVED: 1/30/2018 10:45 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ----
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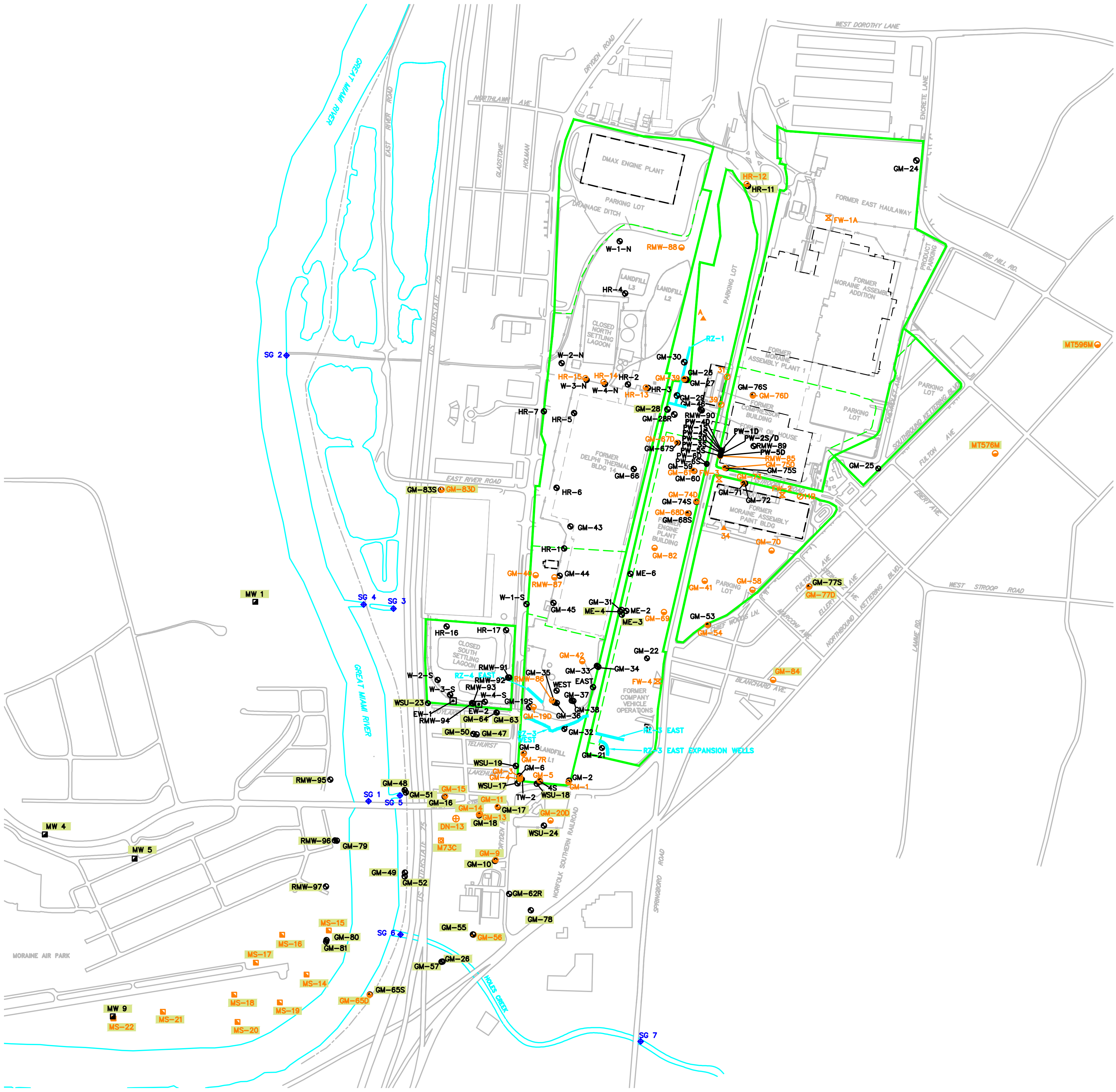


LEGEND

⊕	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE RECOVERY WELL (TW-2)
◒	MONITORING WELL (LOWER AQUIFER)
⊡	PIEZOMETER
▬	CARBON SOURCE INTRODUCTION WELLS, REACTIVE ZONES (RZ-1, RZ-3, AND RZ-4)
⧖	FIRE WELL
▲	PRODUCTION WELL CONVERTED TO MONITORING WELL (34, A)
⊘	INACTIVE PRODUCTION WELL (31, 39, 11B)
⊕	MONTGOMERY COUNTY WELL (USED BY RACER TRUST AS A LOWER AQUIFER RECOVERY WELL)
◩	MONTGOMERY COUNTY WELL (INACTIVE MIAMI SHORES WELL FIELD – DAYTON PRIMARY PUBLIC SUPPLY BACKUP)
⊡	EXTRACTION WELL
◈	STREAM GAUGE
— - —	RIVER LEVEE
◩	CITY OF MORAINE MONITORING WELL
— —	FORMER BUILDING FOOTPRINT
— — —	CURRENT BUILDING FOOTPRINT
—	SURFACE WATER FEATURE
—	PROPERTY BOUNDARY
— —	PARCEL BOUNDARY
🟩	OFFSITE WELLS

NOTES:
1. ORANGE INDICATES LOWER AQUIFER WELLS.
2. BLACK INDICATES UPPER AQUIFER WELLS.

N

0 200 1000ft

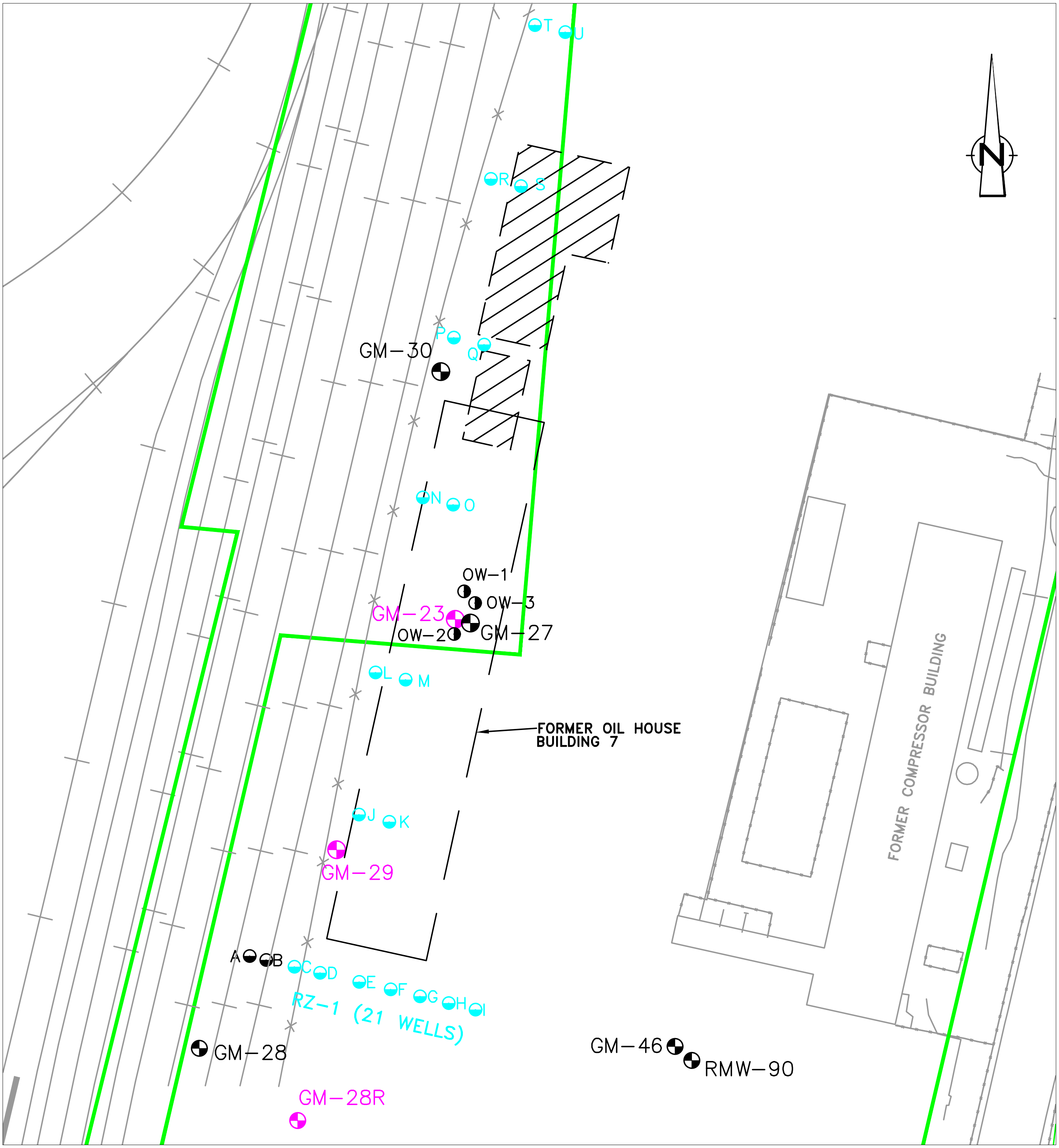
RACER TRUST
MORAINE, OHIO

OH000294.2018

SITE-WIDE CORRECTIVE MEASURES

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3



0 150 FT

LEGEND

- CARBON SOURCE INTRODUCTION WELL
- INACTIVE CARBON SOURCE INTRODUCTION WELL
- OXIDATION WELLS (INACTIVE)
- MONITORING WELL (UPPER AQUIFER)
- ▨ APPROXIMATE LOCATION OF FORMER MORAINE ENGINE TANK FARM
- MONITORING WELL UTILIZED FOR PERFORMANCE MONITORING
- PROPERTY BOUNDARY

RACER TRUST
MORAINE, OHIO

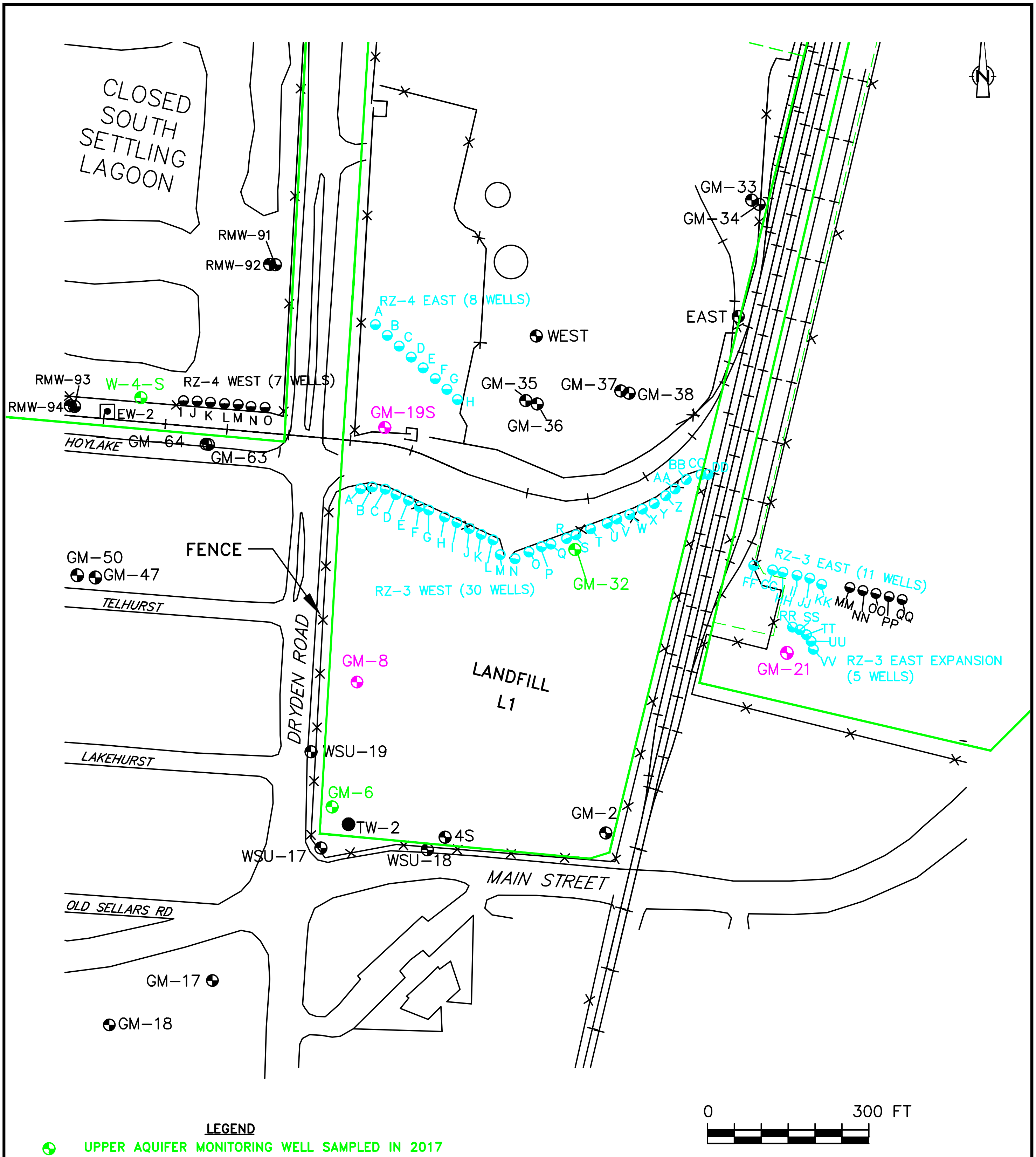
OH000294.2018

REACTIVE ZONE #1

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

C:\Users\bsmith\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-RZ-1-SAMPLES.dwg LAYOUT: REACTIVE ZONE 1 SAVED: 2/7/2018 1:12 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: ----
PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/7/2018 1:16 PM BY: SMITH, BOB
□REFS: PRO□ECTNAME: ----



LEGEND

●	UPPER AQUIFER MONITORING WELL SAMPLED IN 2017
●	CARBON SOURCE INTRODUCTION WELLS
◒	INACTIVE CARBON SOURCE INTRODUCTION WELLS
●	INACTIVE RECOVERY WELL
●	MONITORING WELL (UPPER AQUIFER)
●	MONITORING WELL UTILIZED FOR PERFORMANCE MONITORING
▣	EXTRACTION WELL
━━	PROPERTY BOUNDARY
– – – –	PARCEL BOUNDARY

NOTES:1. INTRODUCTION WELL RZ−3LL WAS NOT INSTALLED DUE TO PRESENCE OF UNDERGROUND UTILITIES.
2. GM−32 MONITORED FOR TOTAL ORGANIC CARBON ONLY.

RACER TRUST
MORAINE, OHIO

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REACTIVE ZONES #3 AND #4

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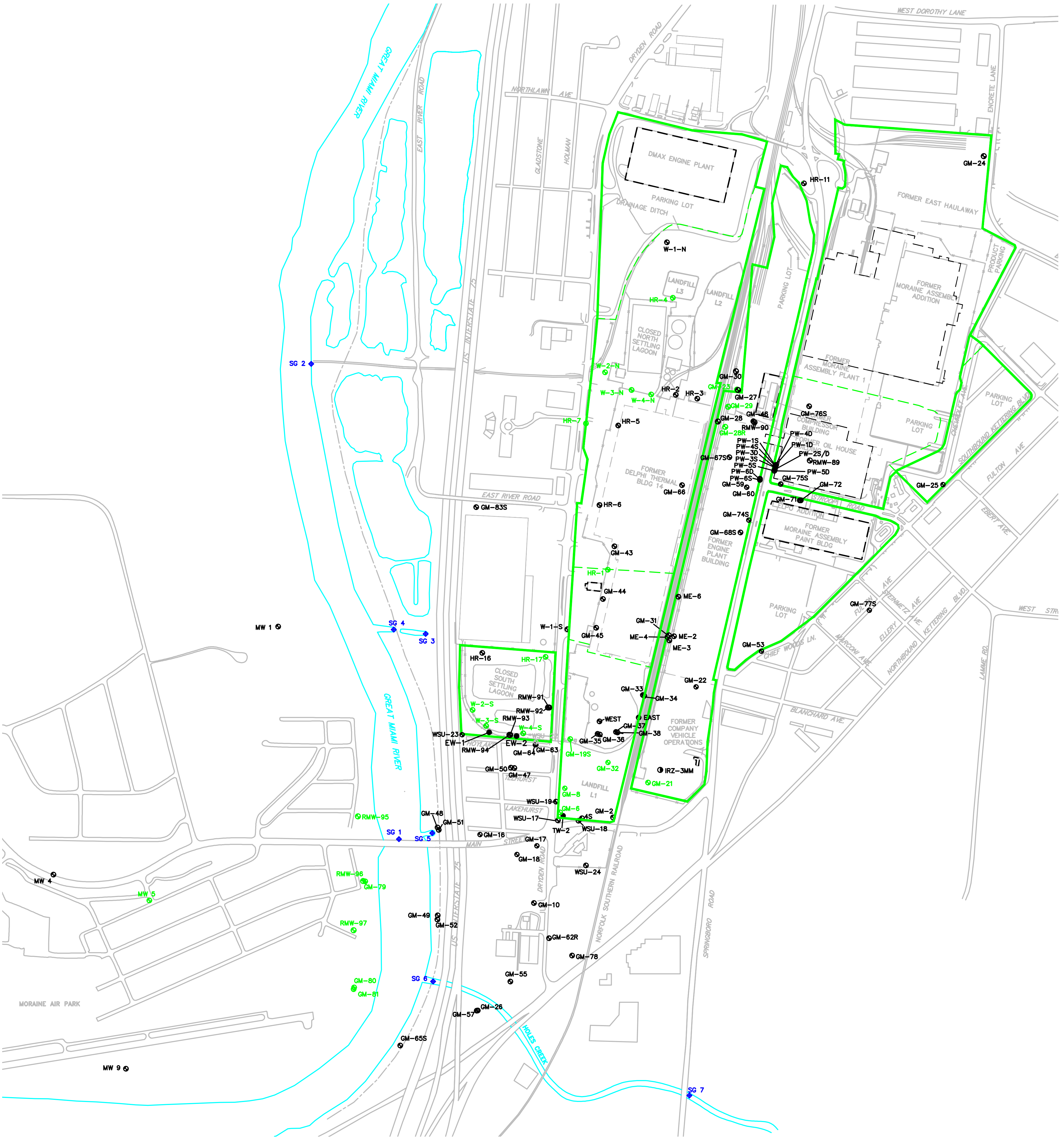
FIGURE
5



N

0 200 1000ft

LEGEND

⊕	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW-1, EW-2, AND TW-2)
◆	STREAM GAUGE
◑	CARBON INTRODUCTION WELL
⊕	UPPER QUIFER MONITORING WELL SAMPLED IN 2017
- - -	FORMER BUILDING FOOTPRINT
— — —	CURRENT BUILDING FOOTPRINT
— - —	RIVER LEVEE
——	SURFACE WATER FEATURE
——	PROPERTY BOUNDARY
— — —	PARCEL BOUNDARY

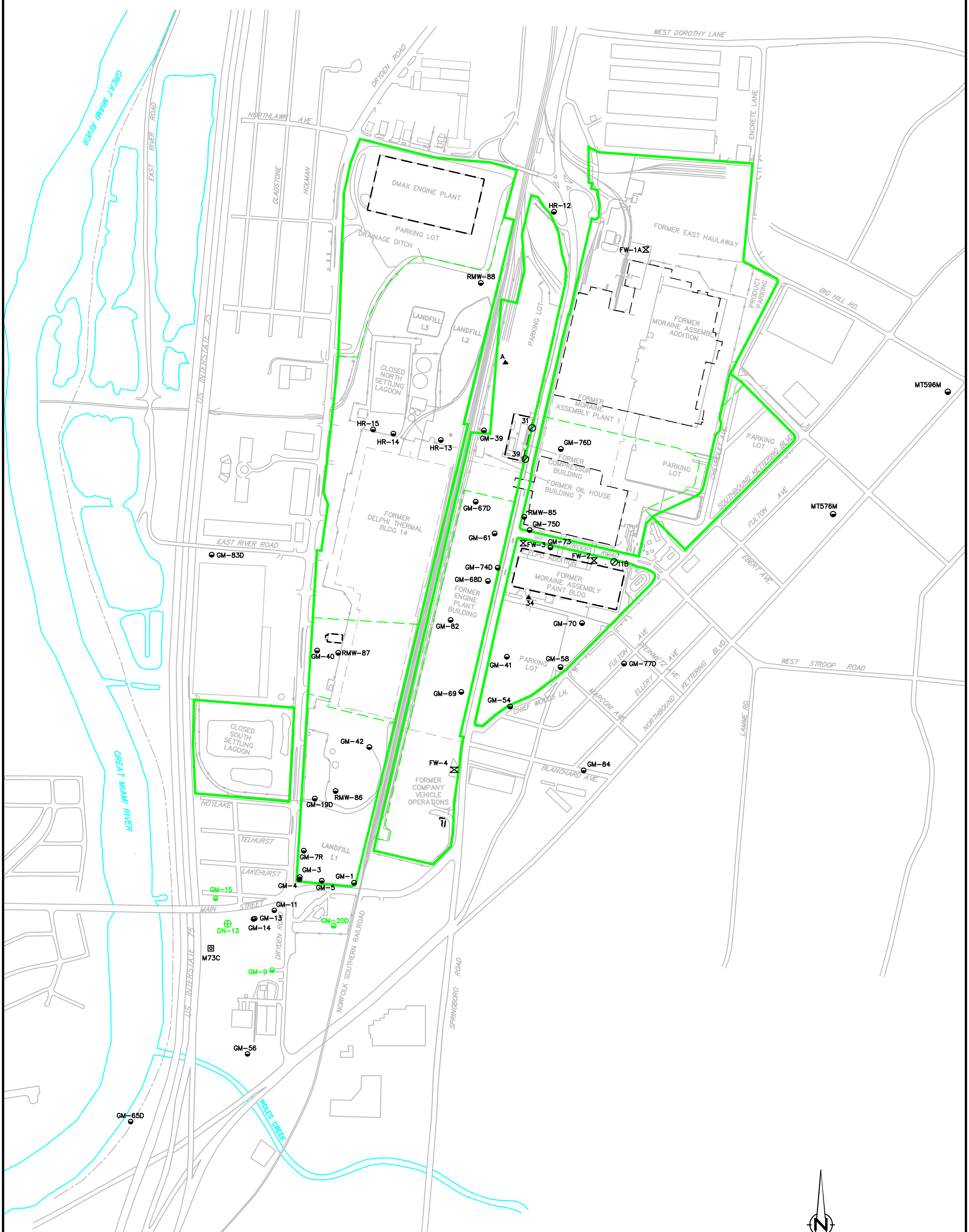
RACER TRUST
MORAINE, OHIO

OH000294.2018

UPPER AQUIFER MONITORING WELLS FOR GROUNDWATER MONITORING

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6



LEGEND

◒	MONITORING WELL (LOWER AQUIFER)
⊡	PIEZOMETER
⧗	FIRE WELL
▲	PRODUCTION WELL CONVERTED TO MONITORING WELL (A, 34)
⊘	INACTIVE PRODUCTION WELL (31, 39, 11B, 12A)
⊕	MONTGOMERY COUNTY WELL (USED BY RACER TRUST AS A LOWER AQUIFER RECOVERY WELL)
◒	LOWER AQUIFER MONITORING WELL SAMPLED IN 2017
— —	FORMER BUILDING FOOTPRINT
— —	CURRENT BUILDING FOOTPRINT
— - —	RIVER LEVEE
—	SURFACE WATER FEATURE
—	PROPERTY BOUNDARY
— — —	PARCEL BOUNDARY

RACER TRUST
MORAINE, OHIO

OH000294.2018

LOWER AQUIFER MONITORING WELLS FOR GROUNDWATER MONITORING

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FIGURE
7

LEGEND

◒	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW–1, EW–2, AND TW–2)
◆ 707.56	STREAM GAUGE AND STREAM GAUGE MEASUREMENT; NOT USED FOR CONTOURING
◑	CARBON INTRODUCTION WELL
— - —	RIVER LEVEE
🟩	PROPERTY BOUNDRY
- - - -	PARCEL BOUNDARY
703.37	GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
704.0 —	GROUNDWATER CONTOUR (FEET ABOVE MEAN SEA LEVEL)
	CONTOUR INTERVAL = 0.5 FOOT
( )	NOT USED FOR CONTOURING
NM	NOT MEASURED
*	WELLS INSTALLED AFTER 2011 ARE SURVEYED TO THE OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). DATA NOT USED IN CONTOURING AND POSTED FOR INFORMATIONAL PURPOSES ONLY
——►	FLOW DIRECTION
- - -	FORMER BUILDING FOOTPRINT
— — —	CURRENT BUILDING FOOTPRINT
——	SURFACE WATER FEATURE

NOTES:

1. DEPTH TO WATER MEASUREMENTS COLLECTED FROM TOP OF WELL CASING ON OCTOBER 11–12, 2017.
2. SURVEY OF WELL COORDINATES WERE ORIGINALLY TO A SITE–SPECIFIC COORDINATE SYSTEM IN FEET IN NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) USING AN ON–SITE BENCHMARK. BASE MAP AND WELL COORDINATES WERE CONVERTED IN 2011 TO OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND NGVD 29 WAS RETAINED AS THE VERTICAL DATUM.
3. GROUNDWATER ELEVATION CONTOURS DEPICT LOSING STREAM CONDITIONS BASED ON GREAT MIAMI RIVER STREAM GAUGE LEVELS AND RESULTS FROM THE GROUNDWATER–SURFACE WATER INTERACTION ASSESSMENT AND REFINEMENT TO THE GROUNDWATER FLOW MODEL.
4. WELLS EW–1, EW–2, RMW–91, RMW–92, RMW–93, AND RMW–94 WERE INSTALLED IN 2017 FOR THE DYNAMIC GROUNDWATER RECIRCULATION (DGR™) PILOT TEST. THE WELL LOCATIONS ARE POSTED FOR INFORMATIONAL PURPOSES ONLY.
5. WELLS PW–1S, PW–1D, PW–2S/D, PW–3S, PW–3D, PW–4S, PW–4D, PW–5S, PW–5D, PW–6S, AND PW–6D WERE INSTALLED IN 2017 FOR THE ENHANCED REDUCTIVE DECHLORINATION (ERD) PILOT TEST. THE WELL LOCATIONS ARE POSTED FOR INFORMATIONAL PURPOSES ONLY.

N

0 200 1000ft

RACER TRUST
MORAINE, OHIO

OH000294.2018

POTENTIOMETRIC SURFACE (UPPER AQUIFER) OCTOBER 2017

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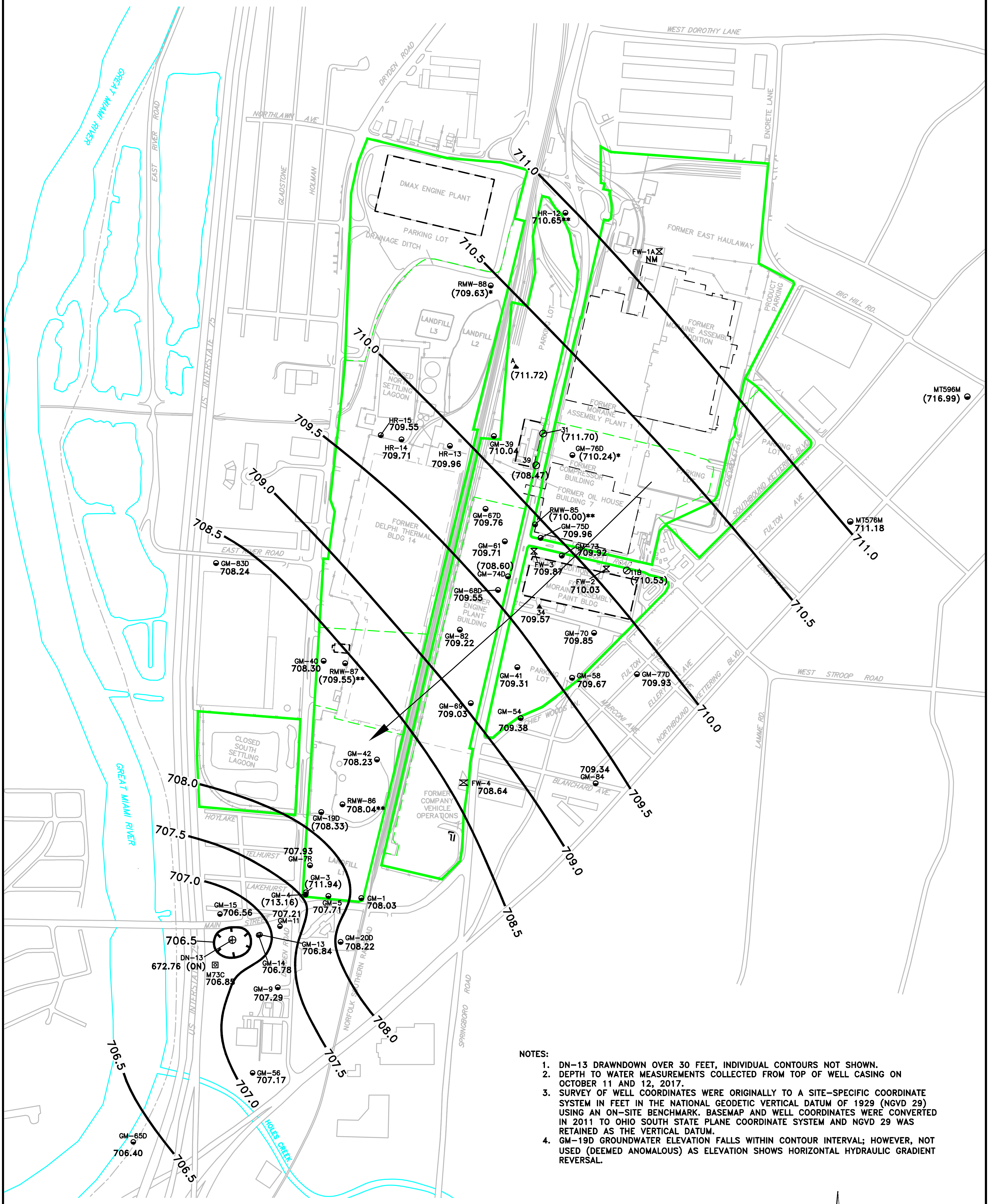
FIGURE
8



NOTES:

1. DN-13 DRAWNDOWN OVER 30 FEET, INDIVIDUAL CONTOURS NOT SHOWN.
2. DEPTH TO WATER MEASUREMENTS COLLECTED FROM TOP OF WELL CASING ON OCTOBER 11 AND 12, 2017.
3. SURVEY OF WELL COORDINATES WERE ORIGINALLY TO A SITE-SPECIFIC COORDINATE SYSTEM IN FEET IN THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) USING AN ON-SITE BENCHMARK. BASEMAP AND WELL COORDINATES WERE CONVERTED IN 2011 TO OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND NGVD 29 WAS RETAINED AS THE VERTICAL DATUM.
4. GM-19D GROUNDWATER ELEVATION FALLS WITHIN CONTOUR INTERVAL; HOWEVER, NOT USED (DEEMED ANOMALOUS) AS ELEVATION SHOWS HORIZONTAL HYDRAULIC GRADIENT REVERSAL.

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)
— · —	RIVER LEVEE
🟩	PROPERTY BOUNDARY
- - -	PARCEL BOUNDARY
— —	FORMER BUILDING FOOTPRINT
— —	CURRENT BUILDING FOOTPRINT
——	SURFACE WATER FEATURE
*	WELLS INSTALLED AFTER 2011 ARE SURVEYED TO THE OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). DATA NOT USED IN CONTOURING AND POSTED FOR INFORMATIONAL PURPOSES
**	WELLS LOCATION ESTIMATED BY FIELD MEASUREMENTS FROM KNOWN SURVEYED POINTS. VERTICAL ELEVATION CORRECTED TO NEARBY WELLS SURVEYED TO NGVD 29 VERTICAL DATUM
708.73	GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
NM	NOT MEASURED
707.0 —	GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL) CONTOUR INTERVAL = 0.5 FOOT
⊥⊥	CONE OF DEPRESSION (ESTIMATED INDIVIDUAL CONTOURS NOT SHOWN)
( )	NOT USED FOR CONTOURING
→	GROUNDWATER FLOW DIRECTION
ON/OFF	INDICATES WHETHER RECOVERY WELL IS IN OPERATION

N

0 200 700ft

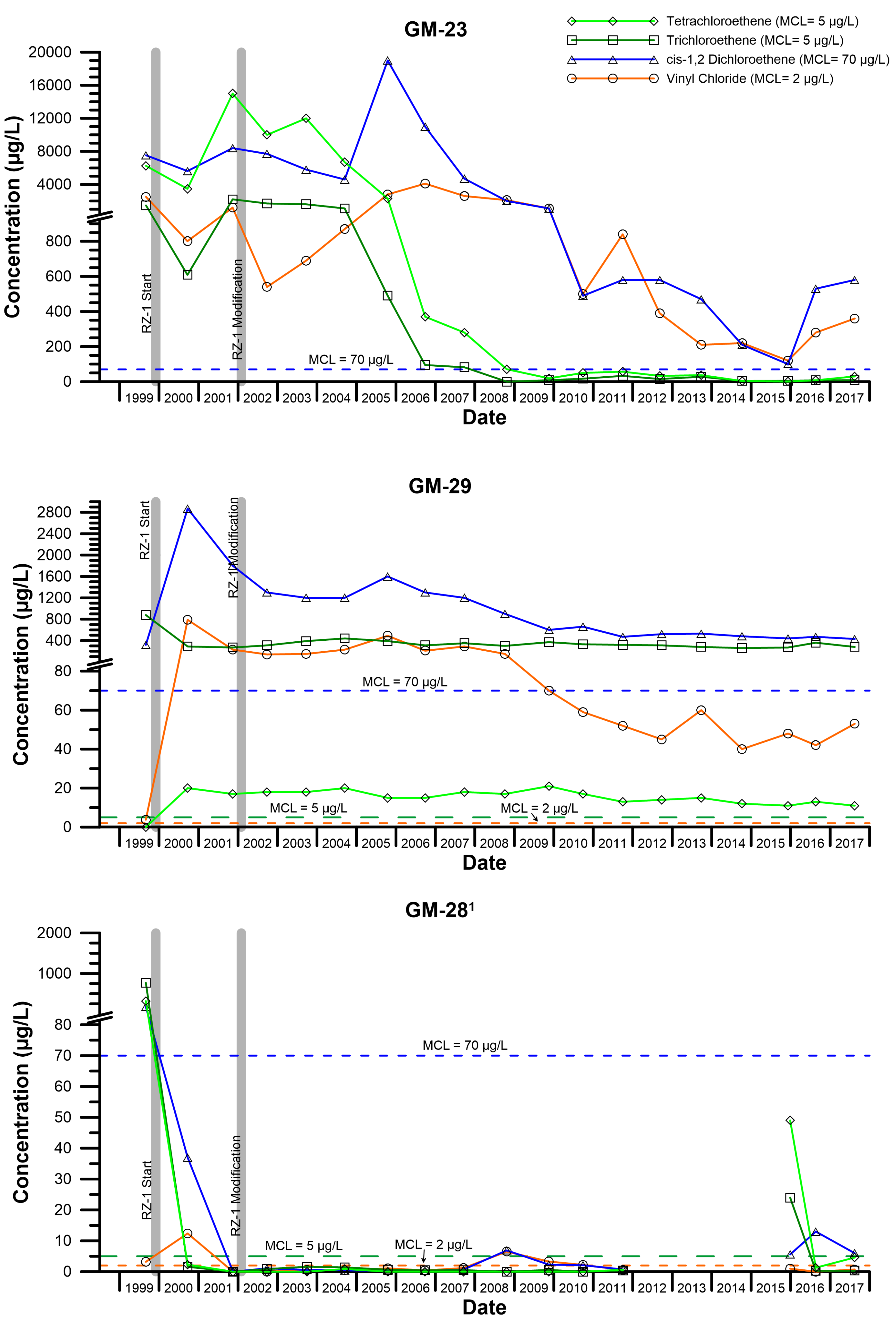
RACER TRUST
MORAINE, OHIO

OH000294.2018

POTENTIOMETRIC SURFACE (LOWER AQUIFER) OCTOBER 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9



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.

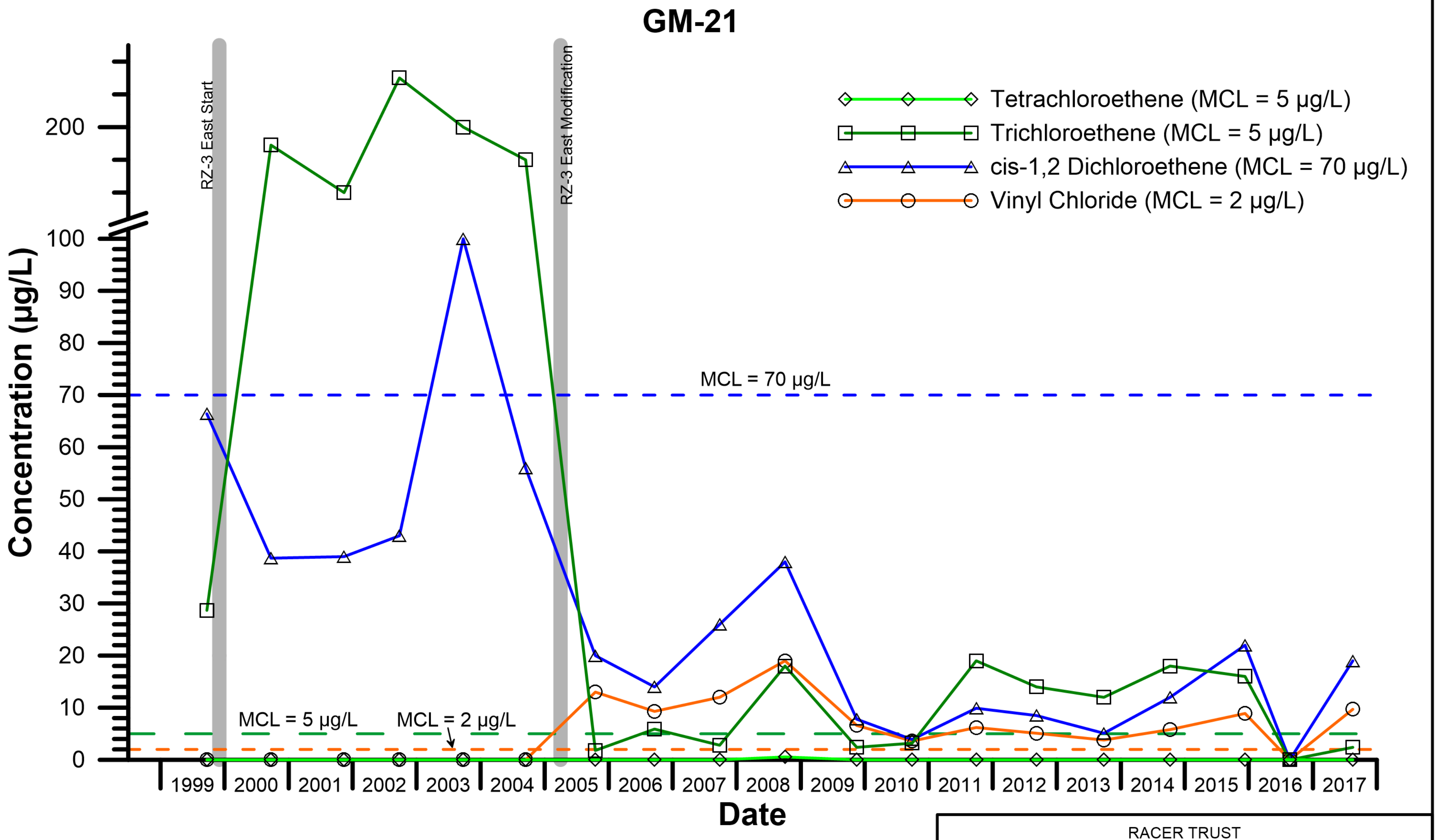
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

RACER TRUST
MORAINE, OHIO
OH000294.2018

RZ-1 AREA GROUNDWATER CONCENTRATION GRAPHS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
10



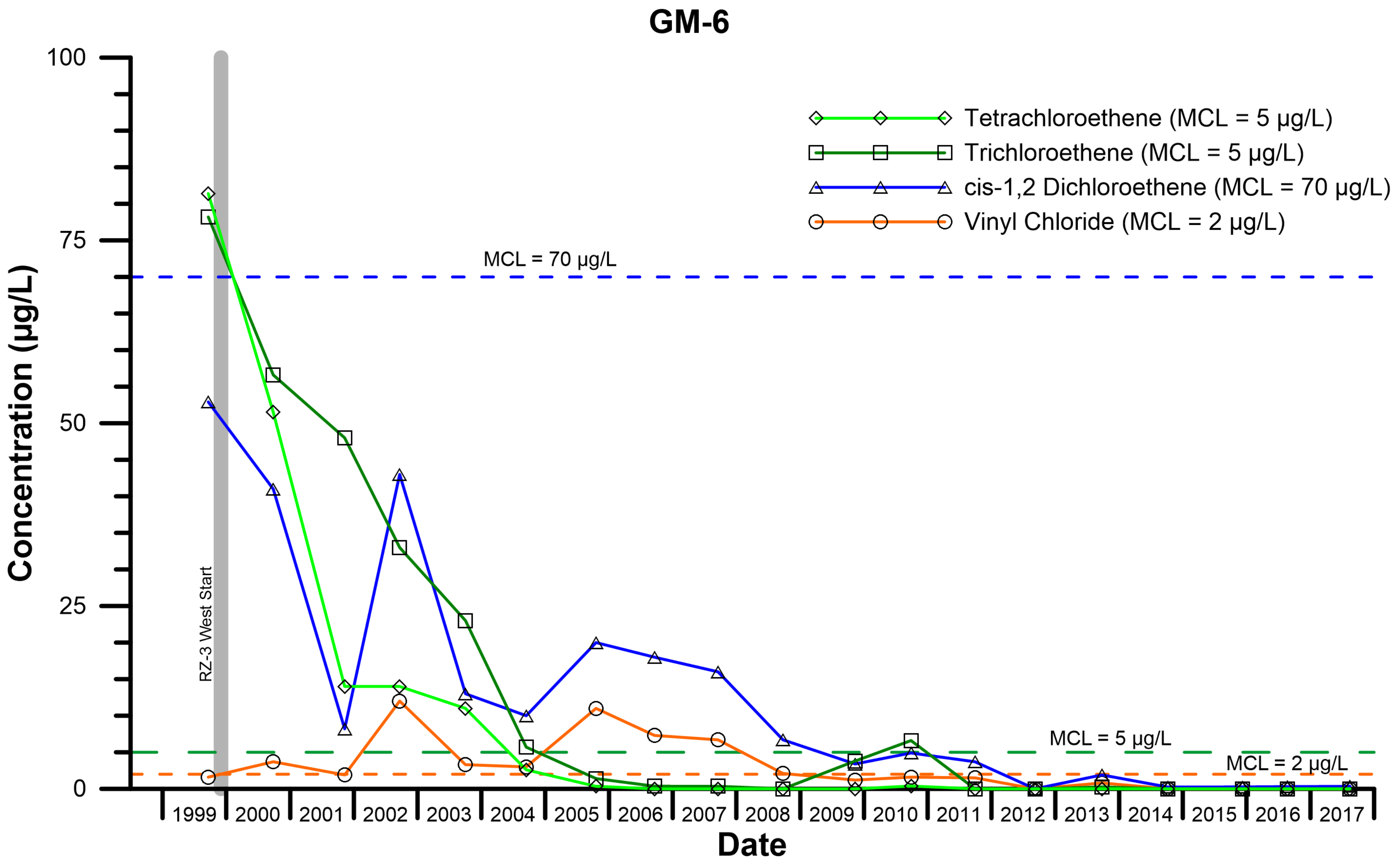
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

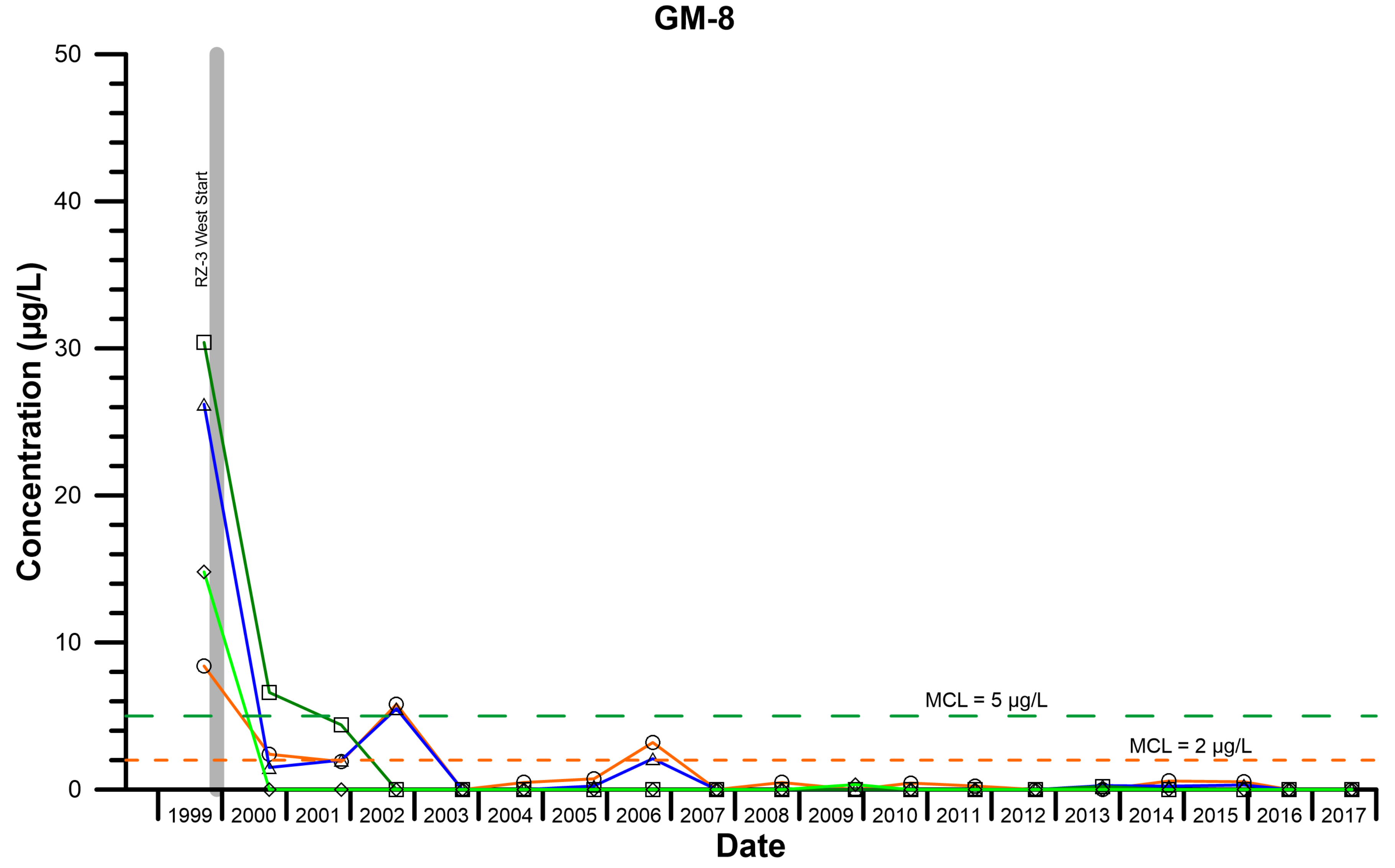
RACER TRUST
MORAINE, OHIO
OH000294.2018

RZ-3 EAST AREA GROUNDWATER CONCENTRATION GRAPH

ARCADIS Design & Consultancy for natural and built assets

FIGURE
11





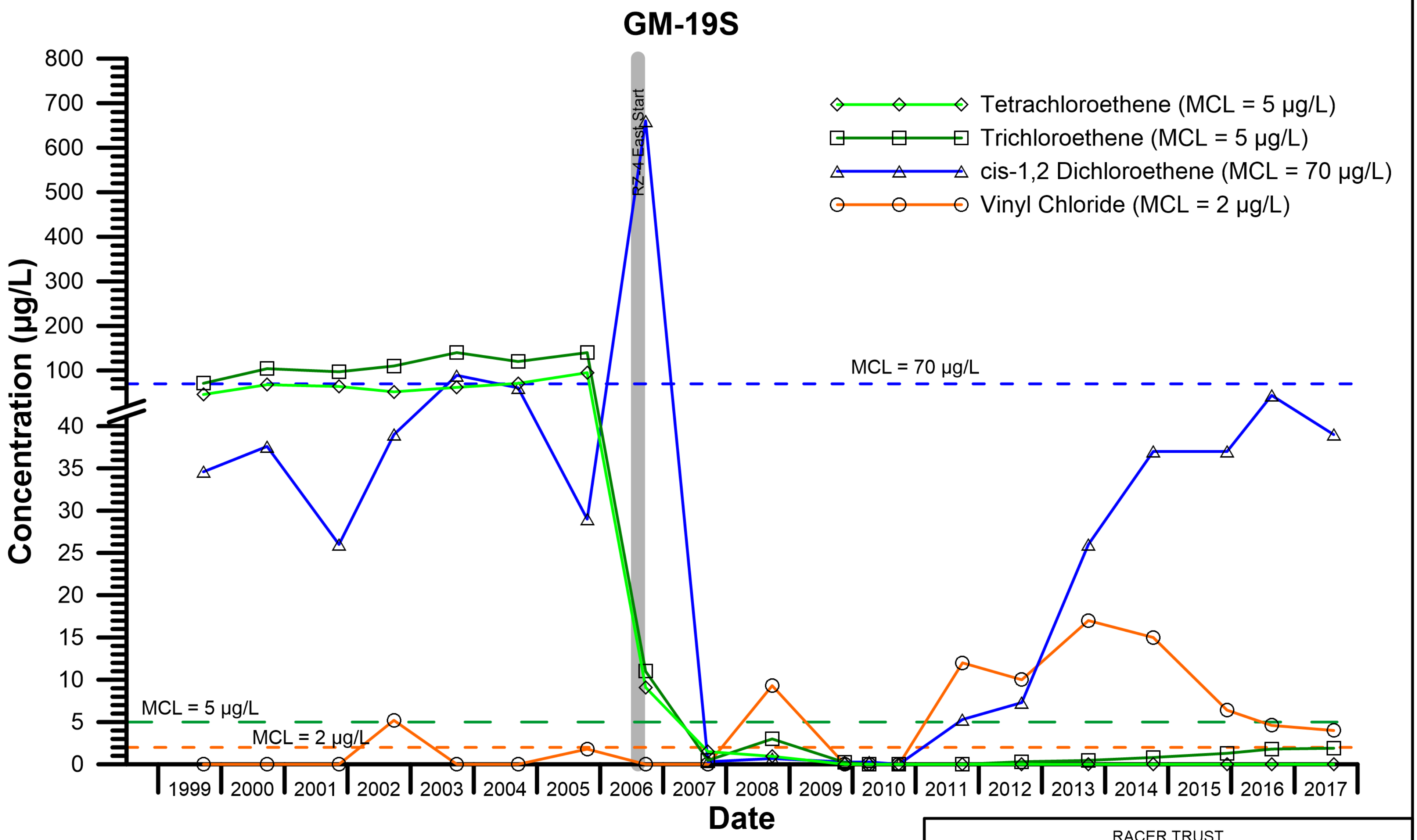
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

RACER TRUST
MORAINE, OHIO
OH00294.2018

RZ-3 WEST AREA GROUNDWATER CONCENTRATION GRAPHS

ARCADIS
Design & Consultancy for natural and built assets

FIGURE
12



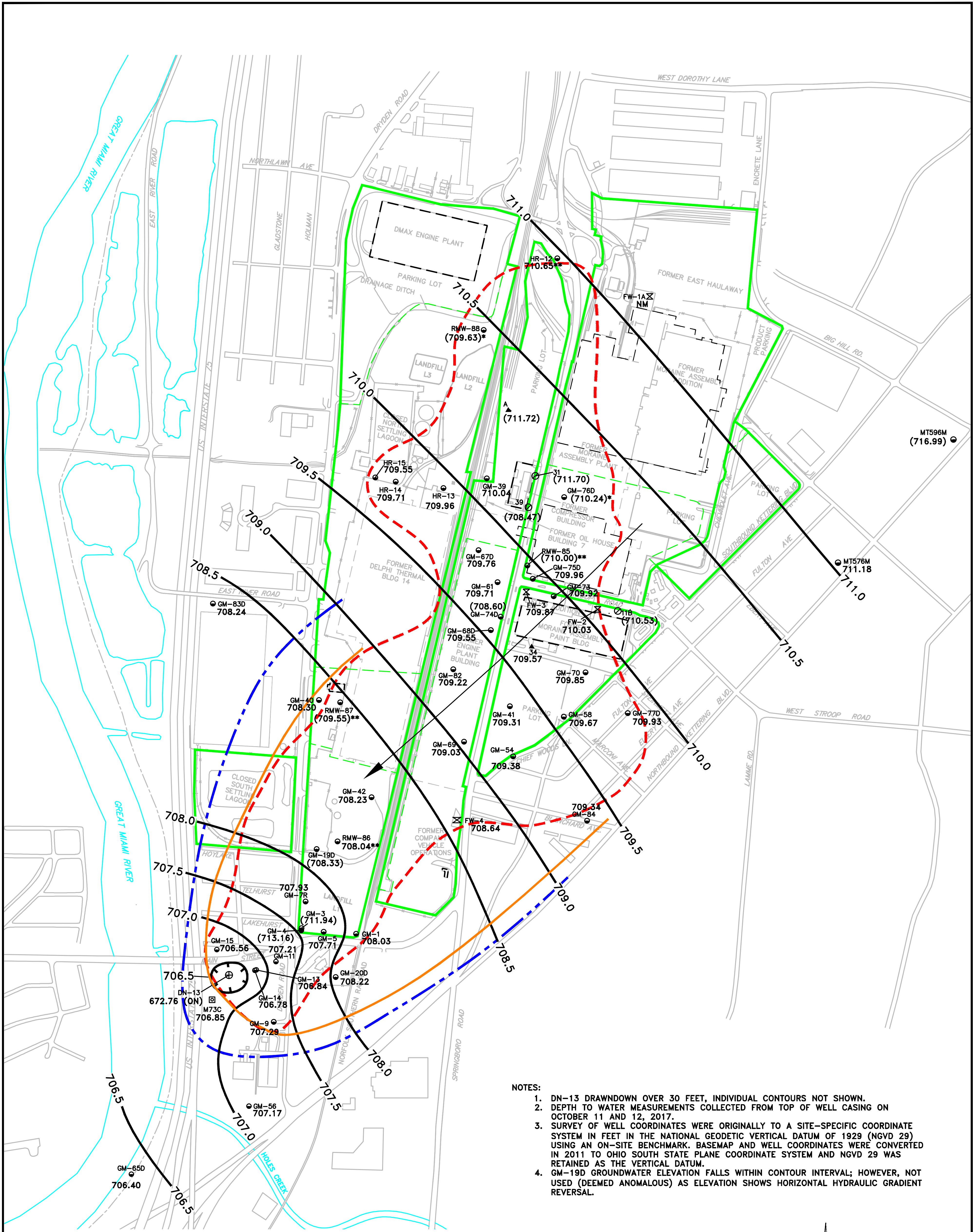
MCL = Maximum Contaminant Level
µg/L = micrograms per liter

RACER TRUST
MORAINE, OHIO
OH000294.2018

RZ-4 EAST AREA GROUNDWATER CONCENTRATION GRAPH

ARCADIS Design & Consultancy for natural and built assets

FIGURE
13



NOTES:

1. DN-13 DRAWNDOWN OVER 30 FEET, INDIVIDUAL CONTOURS NOT SHOWN.
2. DEPTH TO WATER MEASUREMENTS COLLECTED FROM TOP OF WELL CASING ON OCTOBER 11 AND 12, 2017.
3. SURVEY OF WELL COORDINATES WERE ORIGINALLY TO A SITE-SPECIFIC COORDINATE SYSTEM IN FEET IN THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) USING AN ON-SITE BENCHMARK. BASEMAP AND WELL COORDINATES WERE CONVERTED IN 2011 TO OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND NGVD 29 WAS RETAINED AS THE VERTICAL DATUM.
4. GM-19D GROUNDWATER ELEVATION FALLS WITHIN CONTOUR INTERVAL; HOWEVER, NOT USED (DEEMED ANOMALOUS) AS ELEVATION SHOWS HORIZONTAL HYDRAULIC GRADIENT REVERSAL.

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)
— · —	RIVER LEVEE
🟩	PROPERTY BOUNDARY
- - -	PARCEL BOUNDARY
— —	FORMER BUILDING FOOTPRINT
— —	CURRENT BUILDING FOOTPRINT
——	SURFACE WATER FEATURE
- - -	LOWER AQUIFER TOTAL SITE SPECIFIC VOC PLUME GREATER THAN 5 ug/L
— · —	INFERRED CAPTURE ZONE
——	LOWER AQUIFER TARGET CAPTURE ZONE

*	WELLS INSTALLED AFTER 2011 ARE SURVEYED TO THE OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). DATA NOT USED IN CONTOURING AND POSTED FOR INFORMATIONAL PURPOSES
**	WELLS LOCATION ESTIMATED BY FIELD MEASUREMENTS FROM KNOWN SURVEYED POINTS. VERTICAL ELEVATION CORRECTED TO NEARBY WELLS SURVEYED TO NGVD 29 VERTICAL DATUM
708.73	GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
NM	NOT MEASURED
707.0 —	GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL) CONTOUR INTERVAL = 0.5 FOOT
┴┴	CONE OF DEPRESSION (ESTIMATED INDIVIDUAL CONTOURS NOT SHOWN)
( )	NOT USED FOR CONTOURING
⟶	GROUNDWATER FLOW DIRECTION
ON/OFF	INDICATES WHETHER RECOVERY WELL IS IN OPERATION

N

0 200 700ft

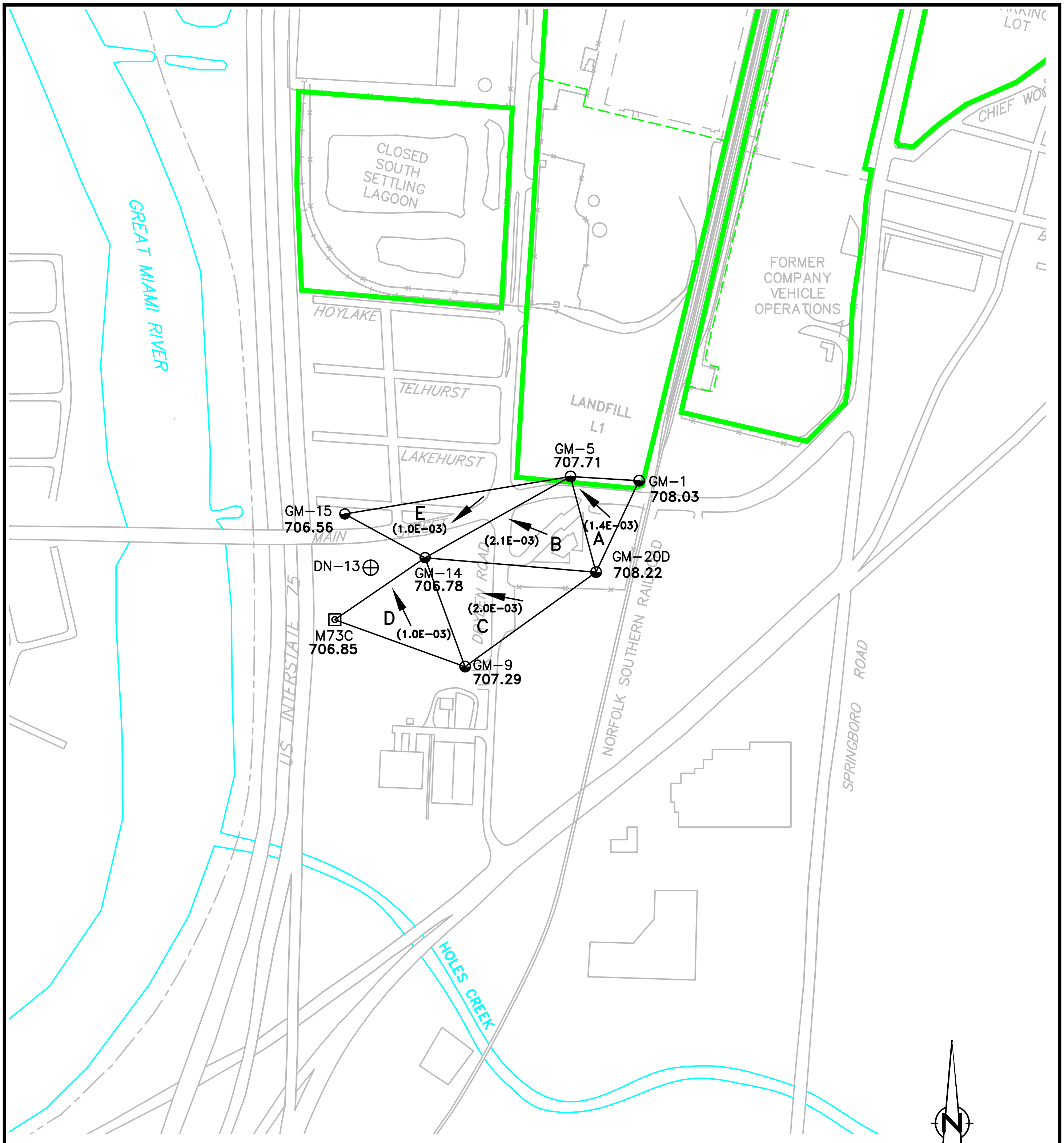
RACER TRUST
MORAINE, OHIO

OH000294.2018

POTENTIOMETRIC SURFACE (LOWER AQUIFER) OCTOBER 11-12, 2017 WITH INFERRED AND TARGETED CAPTURE ZONES

ARCADIS Design & Consultancy for natural and built assets

FIGURE
14



LEGEND

● GM–9	MONITORING WELL (LOWER AQUIFER)
⊠	PIEZOMETER (LOWER AQUIFER)
⊕	MONTGOMERY COUNTY WELL (USED BY RACER TRUST AS LOWER AQUIFER RECOVERY WELL)
— · —	RIVER LEVEE
— —	FORMER BUILDING FOOTPRINT
—	SURFACE WATER FEATURE
🟩	PROPERTY BOUNDARY
- - -	PARCEL BOUNDARY
A	TRIANGULAR IRREGULAR NETWORK (TIN) CELL ID
← (1.0E–0.3)	HORIZONTAL HYDRAULIC GRADIENT DIRECTION AND MAGNITUDE (FOOT/FOOT)

RACER TRUST
MORAINE, OHIO

OH000294.2018

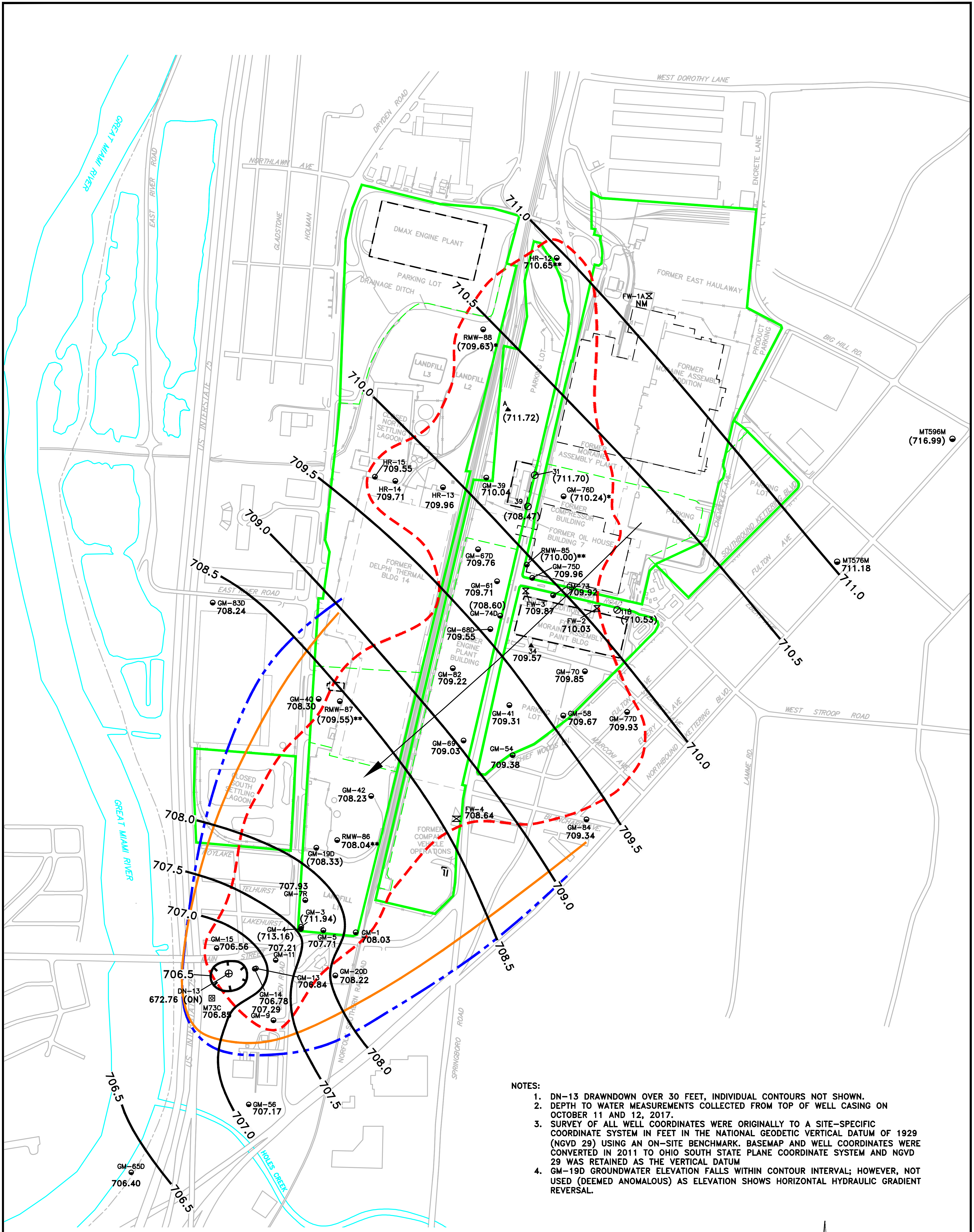
LOWER AQUIFER HORIZONTAL GRADIENTS OCTOBER 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
15

CITY:(COLUMBUS, OH) DIV/GROUP:(IM/DV) DB:(R. SMITH) LD:(Opt) PIC:(Opt) PM:(J. MANZO) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bsmith\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-HOR-GRADIENT.dwg LAYOUT: HOR GRADIENT 090017 SAVED: 2/8/2018 5:18 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: ----
PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/12/2018 2:14 PM BY: SMITH, BOB

XREFS: PROJECTNAME: ----
MLCBASE MAP 2010



NOTES:

1. DN-13 DRAWNDOWN OVER 30 FEET, INDIVIDUAL CONTOURS NOT SHOWN.
2. DEPTH TO WATER MEASUREMENTS COLLECTED FROM TOP OF WELL CASING ON OCTOBER 11 AND 12, 2017.
3. SURVEY OF ALL WELL COORDINATES WERE ORIGINALLY TO A SITE-SPECIFIC COORDINATE SYSTEM IN FEET IN THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) USING AN ON-SITE BENCHMARK. BASEMAP AND WELL COORDINATES WERE CONVERTED IN 2011 TO OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND NGVD 29 WAS RETAINED AS THE VERTICAL DATUM
4. GM-19D GROUNDWATER ELEVATION FALLS WITHIN CONTOUR INTERVAL; HOWEVER, NOT USED (DEEMED ANOMALOUS) AS ELEVATION SHOWS HORIZONTAL HYDRAULIC GRADIENT REVERSAL.

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)
— · —	RIVER LEVEE
—	PROPERTY BOUNDARY
- - -	PARCEL BOUNDARY
— —	FORMER BUILDING FOOTPRINT
— —	CURRENT BUILDING FOOTPRINT
—	SURFACE WATER FEATURE
- - -	LOWER AQUIFER TARGET CAPTURE ZONE
— · —	INFERRED CAPTURE ZONE
—	INTERPRETED CAPTURE ZONE

*	WELLS INSTALLED AFTER 2011 ARE SURVEYED TO THE OHIO SOUTH STATE PLANE COORDINATE SYSTEM AND THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). DATA NOT USED IN CONTOURING AND POSTED FOR INFORMATIONAL PURPOSES
**	WELLS LOCATION ESTIMATED BY FIELD MEASUREMENTS FROM KNOWN SURVEYED POINTS. VERTICAL ELEVATION CORRECTED TO NEARBY WELLS SURVEYED TO NGVD 29 VERTICAL DATUM
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( )	NOT USED FOR CONTOURING
⟶	GROUNDWATER FLOW DIRECTION
ON/OFF	INDICATES WHETHER RECOVERY WELL IS IN OPERATION

N

0 200 700ft

RACER TRUST
MORAINE, OHIO

OH000294.2018

INTERPRETED CAPTURE ZONE

ARCADIS Design & Consultancy for natural and built assets

FIGURE
16

APPENDIX A

In-Situ Reactive Zones Performance Results for 2017

Appendix A

In-Situ Reactive Zones
Performance Results for 2017

In-Situ Reactive Zones Performance Results

As described in Section 1.4.1 of the 2017 Groundwater Monitoring Report (Monitoring Report), the carbon solution delivery network consists of three in-situ reactive zones (IRZs), RZ-1, RZ-3 (East and West), and RZ-4 (East). During 2017, a carbon solution was introduced into the groundwater through introduction wells at RZ-1, RZ-3 (East and West), and RZ-4 (East) shown on Figures 4 and 5 of the Monitoring Report, respectively. RZ-1 was originally installed in 1999 as a nine well barrier downgradient of the Former Oil House Area source area. Based on the performance of the enhanced reductive dechlorination (ERD) technology, RZ-1 was expanded into portions of the Former Oil House Area source area by the addition of 12 introduction wells in 2002. RZ-3 was originally installed in 1999 and has been operated as a cut-off barrier (30 wells in RZ-3 East and 11 wells in RZ-3 West) to mitigate further downgradient volatile organic compound (VOC) migration. In 2005, RZ-3 East was modified by the addition of five introduction wells (RZ-3RR through RZ-3VV) and cessation of introduction in five existing wells (RZ-3MM through RZ-3QQ) to improve performance at the far eastern edge of the plume. Using data obtained from the Supplemental Groundwater Investigation conducted in 2006, RZ-4 was designed and installed to address VOC concentrations present on the western side of the plume. RZ-4 consists of 15 introduction wells, seven wells in RZ-4 West and eight wells in RZ-4 East. The RZ-4 West wells are located in the southeast corner of the closed South Settling Lagoon and the RZ-4 East wells are located north of Landfill L1 and west of the Waste Pile/Staging Area. Introductions to RZ-4 began in August 2006. Operation at RZ-4 West was discontinued September 2007. The following sections discuss the monitoring completed to assess the effectiveness of the in-situ reactive zones and the results of this monitoring.

Reactive Zone Monitoring

Operation of the reactive zones was monitored 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. The monitored 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 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 operational 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 in the event that 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 includes dissolved manganese, dissolved iron, sulfate, and ORP. The primary operational data for select IRZ monitoring wells is discussed below and presented graphically on Figures A-1 through A-3.

Locations of the performance monitoring wells relative to each reactive zone are shown on Figures 4 and 5 of the Monitoring Report. The following wells are used for performance monitoring of the IRZs.

- At RZ-1, monitoring wells GM-28R, GM-29, and GM-23 are currently used for performance monitoring. GM-23 and GM-29 are located within the area of RZ-1 expansion wells. GM-28, located downgradient of the original RZ-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. At RZ-1, carbon is introduced into 19 injection wells designated as RZ-1C through RZ-1U.
- At RZ-3 West, monitoring well GM-32, which is within the introduction 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 only analyzed for TOC, as this well is located in the early stages of the reactive zone due to its proximity to the introduction wells. Monitoring wells GM-6 and GM-8 are located further downgradient and are also utilized to monitor the performance of RZ-3 West. At RZ-3 West, carbon solution is introduced into 30 injection wells designated as RZ-3A through RZ-3DD.
- For RZ-3 East, monitoring well GM-21 is designated as the downgradient monitor well. At RZ-3 East, carbon solution is introduced into 10 injection wells which include the original wells, RZ-3GG through RZ-3KK, and five additional wells, RZ-3RR through RZ-3VV.
- For RZ-4 East, monitoring well GM-19S is used as the downgradient monitoring well. At RZ-4 East, carbon is introduced into eight injection wells designated as RZ-4A through RZ-4H.

During 2017, a target volume of 800 gallons, 1,600 gallons, 1,600 gallons, and 3,000 gallons of a 2 percent molasses solution was injected per introduction well at RZ-1, RZ-3 West, RZ-3 East, and RZ-4 East, respectively. Injections were completed on a quarterly basis in accordance with the revised injection frequency which was determined through implementation of the In-Situ

Reactive Zone Interim Measure Injection Frequency Evaluation dated January 13, 2014. See Section 3.1 of the Monitoring Report that details the results of this evaluation with data summarized in Tables A-1 and A-2. Table A-1 is a summary of the TOC analytical results collected during the evaluation period. Table A-2 is a summary of the half-life analysis.

Table 2 in the Monitoring Report presents the carbon solution introduction volumes for different introduction wells in 2017.

Analysis of Primary Operational Monitoring Data

The primary operational data are comprised of a limited number of variables 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-3 through A-10. Figures A-1 through A-3 present the primary operational data (pH, TOC, methane, VOCs, ethane, and ethene) graphically for 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.

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 2017 from performance monitoring wells were within the acceptable pH range.

Total Organic Carbon and Anaerobic Indicator Parameters

Organic carbon electron donor availability is considered the primary parameter that dictates the overall size and length of the in-situ reactive zones downgradient of each of the injection barriers. The size of the in-situ reactive zone has been historically determined based on evidence of injection influence (i.e., changes in TOC concentrations relative to the background conditions) at individual monitoring wells within each of the reactive zones. The most representative and straightforward method of assessing whether reduction-oxidation reaction (REDOX) conditions are appropriate for reductive dechlorination is to continue reviewing whether detectable methane is present at a given well location and using this performance metric to document that highly anaerobic groundwater conditions exist at a given well location. Figure A-4 provides methane databoxes with historic concentrations in the performance monitoring wells. The observation of methane indicates that background terminal electron acceptors (e.g., dissolved oxygen, ferric iron, sulfate) have been depleted in the IRZ and that the necessary conditions for efficient reductive dechlorination have been established in the vicinity of the IRZs.

ERD injection activities were initiated in 1999 and were scaled up via several expansions in 2002 and 2006. In general, the background concentrations of bioattenuation indicator parameters exhibit some variability, but typical background TOC, methane, and sulfate concentrations are less than 5 milligrams per liter (mg/L), less than 0.1 mg/L, and greater than 40 mg/L, respectively.

There are multiple methods by which to assess changes in these parameters over the course of ERD operations, and most cases rely on a multiple lines of evidence approach to understand the development of the anaerobic conditions necessary to achieve dechlorination, determine the magnitude and longevity of residual carbon substrate concentrations in the subsurface, and to confirm transformation of parent chlorinated VOC compounds through their respective daughter products to end products. This multiple lines of evidence approach is reflected in the ongoing performance monitoring program at the Site.

As geochemical concentrations exhibit some variability in background groundwater, concentrations of these parameters (specifically, sulfate and methane) are compared in relative terms to concentrations outside of the area of IRZ influence. To demonstrate that reducing conditions are sufficient for dechlorination in this system, identified USGS benchmark concentrations will be referenced for comparison to Site data. Per these benchmarks, methane concentrations in excess of 0.2 mg/L and sulfate concentrations below 20 mg/L demonstrate that conditions are favorable for reductive dechlorination (USGS 2008).

It should be noted that while these concentrations are applicable as “rule of thumb” benchmarks for data assessment, these values do not actually preclude whether dechlorination can occur or whether background electron acceptors are being consumed. While methane concentrations are expected to significantly exceed the 0.2 mg/L benchmark value within the treatment zone, complete ERD is achievable in systems with sulfate concentrations that are several-fold higher than the identified USGS value. For this reason, dissolved methane is commonly used as the best indicator to assess the degree of reducing condition development.

TOC values in the RZ-1 performance monitoring wells ranged from 4.8 to 5.9 mg/L and indicate concentrations were at background or slightly above background levels and indicate the carbon is being consumed rapidly by an active soil microbial community. Methane concentrations in GM-23, GM-28R, and GM-29 (2.6, 0.86, and 6.2 mg/L, respectively) were reported above the 0.2 mg/L benchmark and remain significantly above the background levels observed in these monitoring wells in 1999 (e.g., sampling before the start of carbon introductions). Sulfate concentrations in GM-23, GM-28R, and GM-29 (61, 29, and 43 mg/L, respectively) were above the benchmark value of 20 mg/L. The observed methane concentration demonstrates that background electron acceptors are being utilized sufficient to foster development of highly anaerobic conditions, and indicates conditions conducive for reductive dechlorination (e.g., methanogenic) are being maintained.

TOC concentrations at RZ-3 West performance monitoring wells indicate concentrations near or below the range of the background levels (7.0 and 9.2 mg/L for GM-8 and GM-32, respectively). These data are anticipated and consistent with historical data. Methane remained significantly above background conditions at monitoring well GM-8 (2.4 mg/L) and the sulfate concentration at GM-8 was 29 mg/L. The observed methane concentration at GM-8 in spite of its considerable transport distance from the RZ-3 injection network demonstrates that conditions conducive for reductive dechlorination are being maintained in RZ-3 West.

TOC concentrations at RZ-3 East monitoring well GM-21 of 81 mg/L are significantly above baseline conditions and consistent with historical data. The increased TOC concentration at GM-21 is attributed to its close proximity to the RZ-3 east injection network. The increased TOC concentration is consistent with the observed methane concentration of 13 mg/L, which is significantly above the benchmark value of 0.2 mg/L. In addition, the sulfate concentration at GM-21 was 47 mg/L, which in conjunction with the reported methane concentration indicates conditions conducive for reductive dechlorination are being maintained as a result of the carbon injections at RZ-3 East.

The TOC concentration at RZ-4 East monitoring well GM-19S (1.3 mg/L) was similar to background concentrations and indicate the carbon is being consumed rapidly by an active IRZ microbial community. This concentration is consistent with the historical range of TOC values observed over the course of RZ-4 operation (from below detection to 22 mg/L). The concentration of methane at monitoring well GM-19S (0.72 mg/L) remained above the background levels and is above the 0.2 mg/L benchmark. The sulfate concentration for GM-19S (50 mg/L) was above the benchmark value of 20 mg/L. The observation of elevated methane concentrations demonstrates that influence of anaerobic conditions established within RZ-4 are observed in groundwater further downgradient.

VOC Analytical Results

The groundwater analytical data for the site-specific list of VOCs are presented in Table A-3 for RZ-1, Table A-4 for RZ-3 West, Table A-5 for RZ-3 East, and Table A-6 for RZ-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 RZ-1 (GM-23, GM-29, and GM-28R Figure A-1), RZ-3 West (GM-8 Figure A-2), RZ-3 East (GM-21 Figure A-2), and RZ-4 East (GM-19S Figure A-3). These figures show a comparison of degradation end-products ethane and ethene to VOCs per performance well based on molar weight equivalence.

The following bullets summarize the observations and trends evident among the reactive zones at the Moraine Facilities which indicate that enhanced reduction of the targeted chlorinated VOCs is progressing as a result of the carbon introduction process:

- Degradation of the chlorinated VOCs was sustained throughout 2017 within the RZ-1 treatment area. The total chlorinated VOC concentrations in GM-29 decreased in 2017 compared to 2016 (919 micrograms per liter [ug/L] in 2016 and 813 ug/L in 2017). The 2017 concentrations were primarily associated with cis-1,2-DCE (430 ug/L), TCE (280 ug/L), vinyl chloride (53 ug/L), trans-1,2-Dichloroethane (16 ug/L) and PCE (11 ug/L), which were all above their respective MCLs. Concentrations of ethene and ethane were 12 ug/L and 140 ug/L, respectively. The fluctuation in total chlorinated VOCs is consistent with the range observed over the last 5 years, and the observation of both daughter and end products demonstrates that complete transformation of the parent species to is being achieved.

- Total chlorinated VOC concentrations in GM-28R were 11.9 ug/L in 2017 and were primarily associated with PCE (4.6 ug/L) and cis-1,2-DCE (6.0 ug/L), both below their respective MCLs. The concentration of ethene and ethane were 0.052 ug/L and 0.58 ug/L, respectively. These concentrations demonstrate that transformation of the parent species to daughter products is ongoing and complete transformation is being achieved. VOC concentration totals in 2017 (11.9 ug/L) were consistent with the VOC concentration totals observed in 2016 (14.9 ug/L).
- Total chlorinated VOC concentrations in GM-23 increased from 853 ug/L in 2016 to 1,007 ug/L in 2017. Total chlorinated VOC concentrations in GM-23 have fluctuated within a similar range for the past five years. The 2017 concentrations were primarily associated with cis-1,2-DCE (580 ug/L), vinyl chloride (360 ug/L), PCE (30 ug/L), and TCE (8.6 ug/L), which were above their respective MCLs. These concentrations demonstrate that transformation of the parent species to daughter products is ongoing in close proximity to this well location. This is confirmed by the observation of ethene and ethane (28 ug/L and 71 ug/L, respectively), which demonstrates that complete transformation is being achieved (Figure A-1).
- Concentrations of total chlorinated VOCs at RZ-3 West monitoring well GM-8 remained stable in 2017 (1.61 ug/L) compared to 2016 (1.16 ug/L). These data continue to document the effectiveness of the carbon injections at RZ-3 West. Concentrations of ethene and ethane were 0.000023 J ug/L and 0.033 ug/L, respectively, and demonstrate complete transformation from parent products to end products is being achieved.
- Concentrations of total chlorinated VOCs at RZ-3 East monitoring well GM-21 increased in 2017 (43.6 ug/L) to levels similar to concentrations observed in 2015 (60.5 ug/L). Concentrations of site-specific VOCs in 2016 were non-detect. Concentrations of parent products were below the MCLs in 2017. Ethene and ethane (4.6 ug/L and 6.4 ug/L, respectively) concentrations demonstrate that transformation of residual VOC concentrations is being achieved (Figure A-2).
- Degradation of the chlorinated VOCs was sustained throughout 2017 downgradient of the RZ-4 East treatment area. The total VOC concentration reported in monitoring well GM-19S remained stable during 2017 (47.7 ug/L) when compared to the past three monitoring events (61.3 ug/L in 2014, 48.5 ug/L in 2015, and 54.4 ug/L in 2016). The 2017 concentrations were primarily associated with cis-1,2-DCE (39 ug/L). Concentrations of vinyl chloride (4.0 ug/L) were above MCLs. These concentrations demonstrate that transformation of the parent species to daughter products is ongoing.

Conclusions

The following observations and conclusions can be made:

- Aquifer conditions were strongly reducing within and downgradient of the reactive zones due to the introduction of carbohydrate, as evidenced by the presence of methane at concentrations significantly about 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 VOC and light hydrocarbon data.
- Enhanced reductive dichlorination continued to achieve the desired reduction of VOC concentrations in groundwater.
- 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 as a result of decreasing the injection frequency to quarterly. The data corroborate previous evaluations and indicate the quarterly injection frequency is appropriate for the Site with the following recommended modifications to approach:

    - RZ-4 East is located in the vicinity of the neighborhood where implementation of Phase 1 Dynamic Groundwater Recirculation (DGR™) is planned in 2018. Molasses injections in the vicinity of the Phase 1 DGR™ interim measure should stop six months to one year in advance of implementation as the reduced metal species (e.g., ferrous iron) and organic carbon from the molasses introductions can cause fouling in wells used for extraction. Therefore, injections in RZ-4 East will not be completed in 2018.

    - Concentrations of parent products in monitoring well GM-21 (RZ-3 East) have been below the MCLs for approximately two years. Vinyl chloride is the only site-specific VOC concentration remaining above the MCL. In conjunction with suspension of RZ-4 East injection activities, it is also recommended that injections in RZ-3 East be discontinued to limit reduced metal species transport in groundwater towards the neighborhood DGR^{TM} system. Ongoing sampling can also be used to evaluate the permanence of VOC treatment accomplished by the IRZ program.

References

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

USGS, 2008. http://waterdata.usgs.gov/oh/nwis/sw.

Table A-1
TOC Data in the Reactive Zone
RACER Trust
Moraine, Ohio

Monitoring Location	Date	Days Since Injection	TOC (mg/L)
RZ-3D	12/11/2013	0	3200
	1/9/2014	29	940
	2/11/2014	62	720
RZ-3S	12/11/2013	0	2600
	1/9/2014	29	1800
	2/11/2014	62	980
RZ-3TT	12/11/2013	0	3600
	1/9/2014	29	1900
	2/11/2014	62	370
RZ-1E	12/11/2013	0	2800
	1/9/2014	29	560
	2/11/2014	62	420
RZ-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
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)**
RZ-3D	12/9/2013	2/11/2014	0.0237	151.20	7.17
RZ-3S	12/9/2013	2/11/2014	0.0158	308.07	12.40
RZ-3TT	12/6/2013	2/11/2014	0.037	121.62	6.29
RZ-1E	12/9/2013	2/11/2014	0.0301	129.30	6.44
RZ-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 Reactive Zone 1 Wells
RACER Trust
Moraine, Ohio

RZ-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**	**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**
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	19 J	17 J	15 J	12 J	18	11 J	11 J	10 J	15	9.1 J	9.9	10	9.6
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	18 J	15 J	15 J	11 J	12	11 J	8.5 J	8.2 J	12	9.5 J	10	10	13
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	<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
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	<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
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**	**1,600**	**1,300**	**1,200**	**900**	**600**	**660**	**470**	**520**	**530**	**480**	**440**	**470**	**430**
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	<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
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**	**15 J**	**15 J**	**18 J**	**17 J**	**21 J**	**17 J**	**13**	**14 J**	**15**	**12 J**	**11**	**13**	**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	<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
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	27 J	20 J	19 J	16 J	20	19 J	17	15 J	20	15	15	14	16
Trichloroethene	ug/L	**5**	**878**	**758**	**649 J**	**289**	**354**	**437 J**	**270**	**320**	**380**	**310**	**280**	**390**	**440**	**390**	**310**	**350**	**300**	**370**	**330**	**320**	**310**	**280**	**260**	**270**	**360**	**280**
Vinyl chloride	ug/L	**2**	**3.8**	1.0	1.7	**788**	**362**	**276 J**	**230**	**280**	**140**	**140**	**99**	**150**	**230**	**490**	**210**	**290**	**150**	**70**	**59**	**52**	**45**	**60**	**40**	**48**	**42**	**53**
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	<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
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**	**2,559**	**1,887**	**1,907**	**1,406**	**1,111**	**1,107**	**892**	**922**	**934**	**826**	**805**	**919**	**813**

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 Reactive Zone 1 Wells
RACER Trust
Moraine, Ohio

RZ-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**
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
1,1-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
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
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
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**
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
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**
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
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
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**
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**
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
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**

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 Reactive Zone 1 Wells
RACER Trust
Moraine, Ohio

RZ-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**
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
1,1-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
1,1-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
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
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
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
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
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
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
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
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
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
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**

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 Reactive Zone 3 West Wells
RACER Trust
Moraine, Ohio

RZ-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**
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
1,1-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
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
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
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
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
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
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
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
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
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
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
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**

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

RZ-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**
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
1,1-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
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
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
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
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
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
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
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
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
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
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
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**

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

RZ-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**
Volatile Organic Compounds																													
1,1,1-Trichloroethane	ug/L	200	53.1	15.4	27.9	15.7	7.0	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
1,1-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
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
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
cis-1,2-Dichloroethene	ug/L	70	66.4	35.9	47.8	38.7	39.5	37.8	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
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
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
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
trans-1,2-Dichloroethene	ug/L	100	7.8	9.3	7.4	12.9	16.4	15.7	15	2.8	8.3	5.1	2.2J	2.9J	7.9	22	4.3	4.8	2.5	4.7	4.4	3	1.9	1.7 J	1.1	1.6	1.6 J	<1.0 U	1.5
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**
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**
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
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**	**0.0**	**43.6**

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.

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

RZ-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
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
1,1-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
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
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
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
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
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
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
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
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
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**
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
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**

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 Reactive Zone 1
RACER Trust
Moraine, Ohio

RZ-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**	**9/30/11**	**9/26/12**	**9/27/13**	**10/9/14**	**12/8/15**	**8/22/16**	**8/17/17**
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	NA	NA	NA	NA	NA	<0.1 U	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	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	NA	NA	NA	NA	< 0.100 UH	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	0.18	0.170	0.190	0.190	0.22	0.14	180
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	0.11	0.110	0.110	0.130	0.12	0.13	140
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	6.3	5.0	6.5	6.4	7.3	4.4	5.8
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	2.4	2.3	2.4	3.6	4.0	4.1	4.1
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	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	64	58	55	41	49	42	43
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	<1.0 U	0.80 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	< 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	8.5	9.4	12	16	12	14	5.9
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	130	130 B	140	150	150 B	140	140
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	NA	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	NA	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	NA	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	3.1	3.7	4.5	6.0	5.9	6.7	6.2
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	NA	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	180,000	160,000	150,000	180,000	170,000	160,000	140,000
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	20,000	18,000	17,000	16,000	16,000	17,000	12,000
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	6.59	6.69	6.87	6.94	7.19	6.93	6.75
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	1,651	960	1,302	1,341	1,460	1,340	1,300
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	0.15	0.70	0.21	0.11	0.00	0.26	3.35
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	-14.2	-60	-108	-102.1	-124.0	-155.0	-125.0
Temperature	^{o}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	21.1	21.0	24.0	17.2	16.7	10.9	19.5

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.
^{o}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-7
Bioattenuation Parameter Results for Groundwater Samples Collected in Reactive Zone 1
RACER Trust
Moraine, Ohio

RZ-1		RZ-1		GM-23																								
Constituents	**Units**	**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**	**9/29/99**	**2/22/00**	**5/26/00**	**9/30/11**	**9/7/12**	**9/27/13**	**10/10/14**	**12/5/15**	**8/22/16**	**8/17/17**
Inorganics & TOC		**Inorganics & TOC**																										
Nitrate	mg/L	Nitrate	mg/L	0.08	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA	NA	NA	<1.0 U	NA
Nitrite	mg/L	Nitrite	mg/L	3.83	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	Nitrogen, Ammonia	mg/L	<0.30 U	0.94	2.84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.30 U	28.1	26.1	NA	NA	NA	NA	0.550 H	NA	NA
Manganese (Total)	mg/L	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	0.227	23	15.0	0.57	0.410 B	0.450	0.250 B	0.14	0.18	0.31
Manganese (Dissolved)	mg/L	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	0.198	19.9	14.9	0.5	0.380 B	0.440	0.240 B	0.22	0.17	300
Iron (Total)	mg/L	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	<0.10	276	332	7.5	4.8	3.6	4.0 B	4.2	4.5	3.6
Iron (Dissolved)	mg/L	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	<0.10	234	311	6	4.7	3.7	4.1 B	5.8	4.6	3.2
Iron (Ferrous)	mg/L	Iron (Ferrous)	mg/L	4.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	Sulfate	mg/L	72	650	8040	1440	920	810	310 J	650	430 J	120	850	590	490	130	160	65	199	55	200	74	120	34	15	34	61
Sulfide	mg/L	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	<1 0	2.33	<1.0 U	<1.0 U	<1.0 U	0.59 J	<1.0 U	<1.0 U	<1.0 U
Total Organic Carbon	mg/L	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	12	7,640	3560	6.6	7.2	6.4	7.7	6.9 B	6.2	5.9
Chloride	mg/L	Chloride	mg/L	118	143	85	232	180	190	220	140 J	220	260	220	210	220	100	43	483	2,540	702	65	97 B	39	150 B	180 B	120	71
Permanent Gases		**Permanent Gases**																										
Carbon Dioxide	mg/L	Carbon Dioxide	mg/L	88.47	264.8	323.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42.51	1096	643.31	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	Oxygen	mg/L	0.96	1.56	17.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.03	0.26	<0.15	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	Nitrogen	mg/L	20.22	13.75	3.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.85	5.82	4.33	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	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	0.001898	0.02337	2.59	2.0	2.6	0.84	5.5	5.4	4.5	2.6
Carbon Monoxide	mg/L	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	<0.40 U	<0.40 U	NA	NA	NA	NA	NA	NA	NA
Light Hydrocarbon Scan		**Light Hydrocarbon Scan**																										
Ethane	ng/L	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	967	142	123	25,000	71,000	16,000	100,000	88,000	84,000	71,000
Ethene	ng/L	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	1783	674	325	230,000	74,000	16,000	74,000	140,000	76,000	28,000
Field Parameters		**Field Parameters**																										
pH	S.U.	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	6.78	5.45	5.55	6.52	9.13	6.76	6.98	7.43	6.89	6.37
Specific Conductivity	umhos/cm	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	3191	21151	7990	1,812	1,310	1,228	1,321	1,530	1,330	1,110
Dissolved Oxygen	mg/L	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	0.12	3.64	6.45	0.54	2.83	0.40	0.23	0.00	0.40	5.20
Redox Potential	mV	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	164.9	-18.5	-68.1	-52	-161	-49	-63.8	-79	-114	-164
Temperature	^{o}C	Temperature	^{o}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	18.09	19.96	20.50	17.40	22.5	24.7	16.7	16.7	18.5	18.9

NOTES:
< - Constituent not detected above laboratory repor
(1) Monitoring Well GM-28R was installed on Dece
B - Blank Contamination.
^{o}C - Degrees Celsius.
Carbon source introductions began in December 1
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 ba
S.U. - Standard Units.
U - Constituent not detected above laboratory repo

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.
^{o}C - Degrees Celsius.
Carbon source introductions began in December 1999.
J - Value is estimated.
mg/L - Milligrams per Liter.
ng/L - Nanograms per Liter.
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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 Reactive Zone 1
RACER Trust
Moraine, Ohio

RZ-1		RZ-1		GM-28																					GM-28R$^{(1)}$		
Constituents	**Units**	**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**
Inorganics & TOC		**Inorganics & TOC**																									
Nitrate	mg/L	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
Nitrite	mg/L	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
Nitrogen, Ammonia	mg/L	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
Manganese (Total)	mg/L	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
Manganese (Dissolved)	mg/L	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
Iron (Total)	mg/L	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
Iron (Dissolved)	mg/L	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
Iron (Ferrous)	mg/L	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
Sulfate	mg/L	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
Sulfide	mg/L	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
Total Organic Carbon	mg/L	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
Chloride	mg/L	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
Permanent Gases		**Permanent Gases**																									
Carbon Dioxide	mg/L	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
Oxygen	mg/L	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
Nitrogen	mg/L	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
Methane	mg/L	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
Carbon Monoxide	mg/L	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
Light Hydrocarbon Scan		**Light Hydrocarbon Scan**																									
Ethane	ng/L	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
Ethene	ng/L	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
Field Parameters		**Field Parameters**																									
pH	S.U.	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
Specific Conductivity	umhos/cm	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
Dissolved Oxygen	mg/L	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
Redox Potential	mV	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
Temperature	^{o}C	Temperature	^{o}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

NOTES:
< - Constituent not detected above laboratory repor
(1) Monitoring Well GM-28R was installed on Decei
B - Blank Contamination.
^{o}C - Degrees Celsius.
Carbon source introductions began in December 19
J - Value is estimated.
mg/L - Milligrams per Liter.
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(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
^{o}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 Reactive Zone 3 West
RACER Trust
Moraine, Ohio

RZ-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**
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	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
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
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
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
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
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	-105.0
Temperature	^{o}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

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.
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 Reactive Zone 3 West
RACER Trust
Moraine, Ohio

RZ-3 West		RZ-3 West		GM-8																	
Constituents	**Units**	**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**
Inorganics & TOC		**Inorganics & TOC**																			
Nitrate	mg/L	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
Nitrite	mg/L	Nitrite	mg/L	<0.033 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	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
Manganese (Total)	mg/L	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
Manganese (Dissolved)	mg/L	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
Iron (Total)	mg/L	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
Iron (Dissolved)	mg/L	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
Iron (Ferrous)	mg/L	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
Sulfate	mg/L	Sulfate	mg/L	59	54	59	<5.0 U	13 J	27	24	49	32	23	22	24	27	22	28	32	32	29
Sulfide	mg/L	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
Total Organic Carbon	mg/L	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
Chloride	mg/L	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
Permanent Gases		**Permanent Gases**																			
Carbon Dioxide	mg/L	Carbon Dioxide	mg/L	15.8	9.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	Oxygen	mg/L	1.1	0.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	Nitrogen	mg/L	19.7	25.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	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
Carbon Monoxide	mg/L	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
Light Hydrocarbon Scan		**Light Hydrocarbon Scan**																			
Ethane	ng/L	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
Ethene	ng/L	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
Field Parameters		**Field Parameters**																			
pH	S.U.	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
Specific Conductivity	umhos/cm	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
Dissolved Oxygen	mg/L	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
Redox Potential	mV	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
Temperature	^{o}C	Temperature	^{o}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

NOTES:
< - Constituent not detected above laboratory reportir
B - Blank Contamination.
^{o}C - Degrees Celsius.
Carbon source introductions began in December 199
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 bas
S.U. - Standard Units.
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NOTES:
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J - Value is estimated.
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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 Reactive Zone 3 East
RACER Trust
Moraine, Ohio

RZ-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**	**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**
Inorganics & TOC																		
Nitrate	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U	NA
Nitrite	mg/L	0.0	0.0	0.0	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	<0.100 UH	NA	NA
Manganese (Total)	mg/L	0.321	0.233	0.215	0.336	0.298	0.30 B	0.30 B	0.78	0.882	0.758	0.93	1.100 B	1.1	1.1 B	0.880 B	0.62	0.48
Manganese (Dissolved)	mg/L	0.273	0.225	0.212	0.312	0.291	0.32 B	0.29 B	0.77	0.893	0.768	0.91	1.100 B	1.0	1.1 B	0.890 B	0.61	0.51
Iron (Total)	mg/L	2.58	0.30	0.83	0.63	0.11	<0.10 U	0.16	17.9	19.6	26.1	32	31	32	34 B	29 B	29	21
Iron (Dissolved)	mg/L	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	0.11	16.7	20.2	25.6	31	33	32	34 B	29 B	28	22
Iron (Ferrous)	mg/L	0.4	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	103	102	80	102	118	120	100	38	19	13	23	56	21	<50 U	16	41	47
Sulfide	mg/L	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	1.9	1.5	4.0 J	<1.0 U	<1.0 U	14	1.0	1.6	0.47 J	<1.0 U	<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	18	45	91	100	86	120	120	110	94	81
Chloride	mg/L	136	145	126	129	165	140	150	240	220	230	300	240 B	290	310 B	300 B	240	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
Oxygen	mg/L	1.41	0.99	1.89	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
Methane	mg/L	0.037	0.018	0.014	0.042	0.048	0.049	0.035	28	28	23	15	12	NA	15	17	16	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
Light Hydrocarbon Scan																		
Ethane	ng/L	72	67	84	72	82	76	120	77,000	71,000	50,000	21,000	7,500	NA	6,800	6,300	6,100	6,400
Ethene	ng/L	169	38	70	69	46	46	100	13,000	6,700	3,600	3,100	5,800	NA	5,400	8,100	7,000	4,600
Field Parameters																		
pH	S.U.	6.99	7.22	7.06	7.21	7.85	7.50	7.45	6.05	6.40	6.46	6.50	6.36	6.38	7.12	6.95	6.40	6.30
Specific Conductivity	umhos/cm	1,188	1,299	1,048	1,096	1,067	1,190	1,360	1,405	2,088	2,424	2,974	2,511	1,373	2,853	1,280	2,560	2,340
Dissolved Oxygen	mg/L	0.66	0.60	0.40	0.99	0.57	0.04	0.04	0.12	0.24	3.60	0.30	0.12	0.47	0.28	0	0.64	5.08
Redox Potential	mV	-26.9	113.3	167.1	153.9	218.5	168.8	-25	68	-92.1	-95.1	-13.7	-12	22.6	-29.3	-151	-93	-76
Temperature	^{o}C	20.43	18.43	17.92	19.03	17.59	16.73	15.82	16.5	16.32	16.65	23.00	22.90	23.70	16.40	16.37	17.32	17.42

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

RZ-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**
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	NA	<0.1 U	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

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.

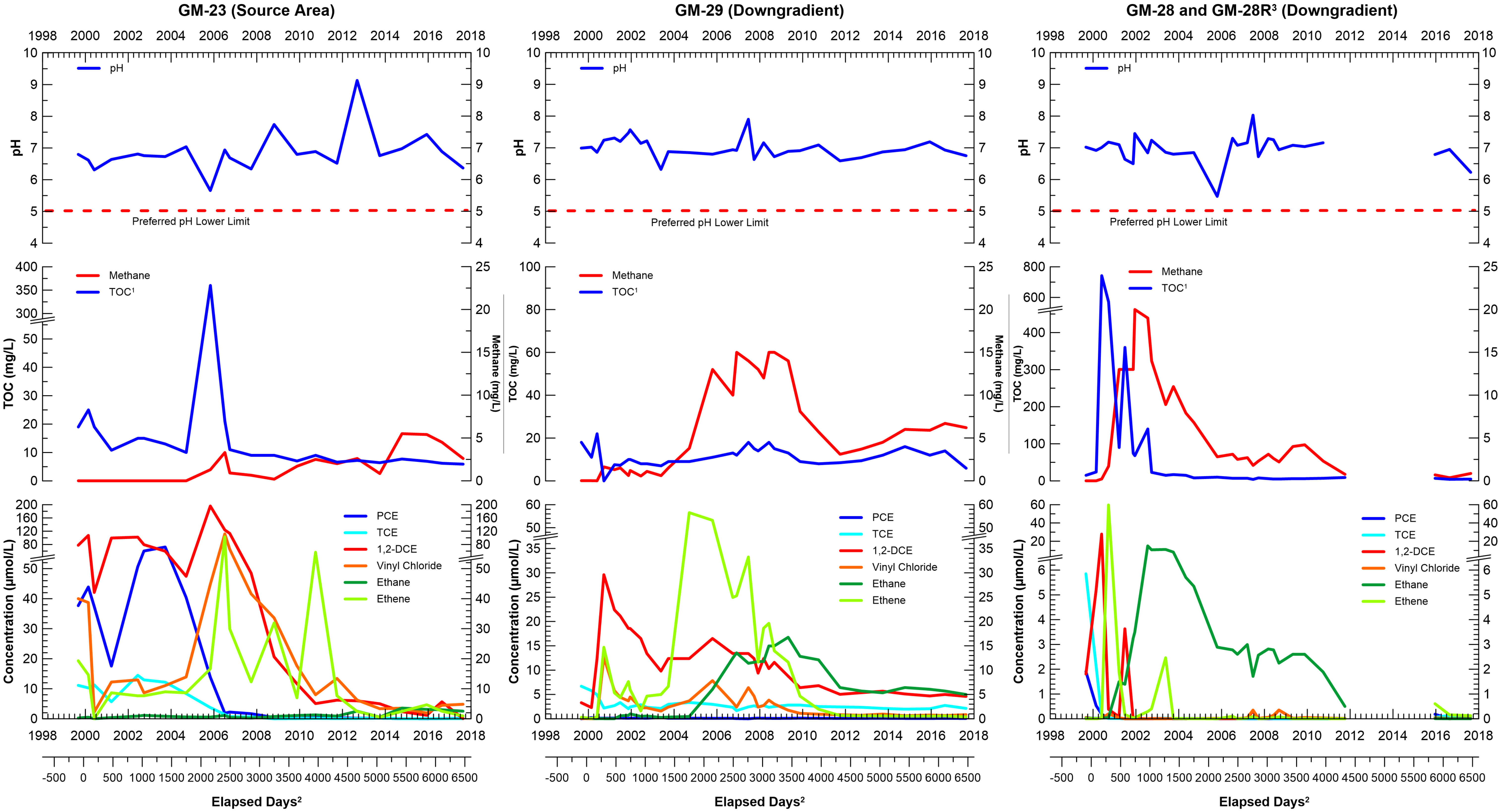
NA - Not Analyzed.

< - 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.



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

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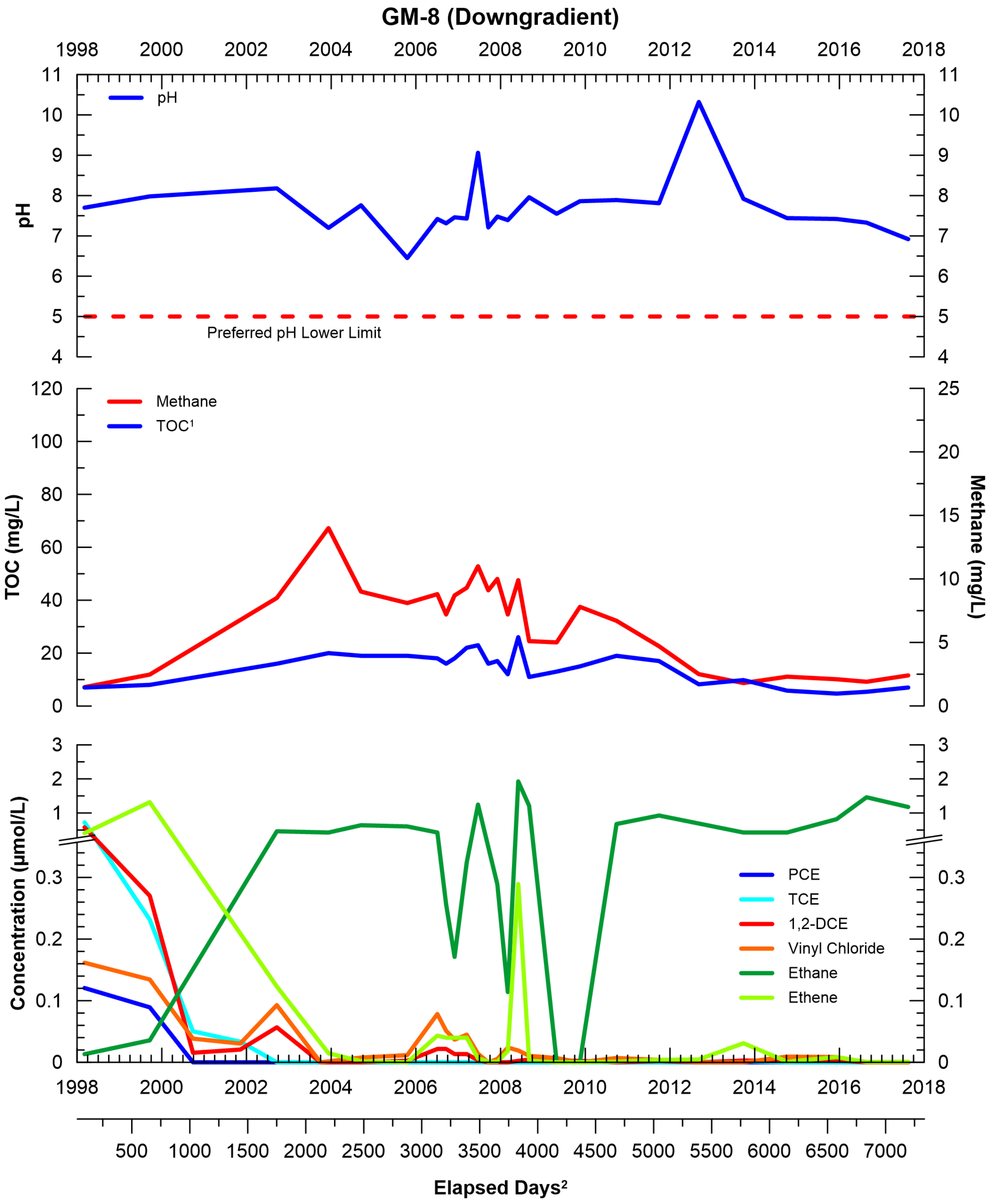
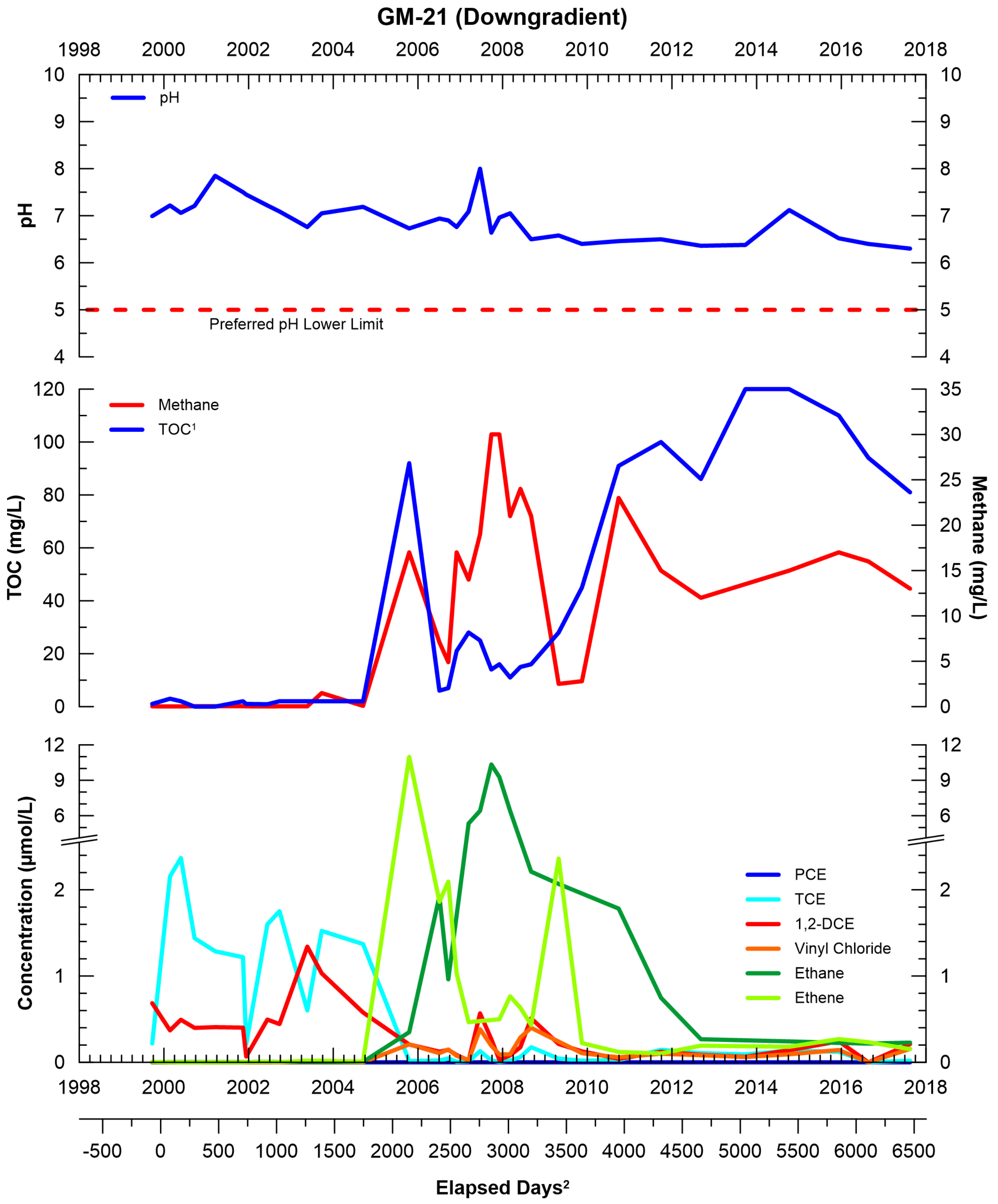
FIGURE
A-1





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

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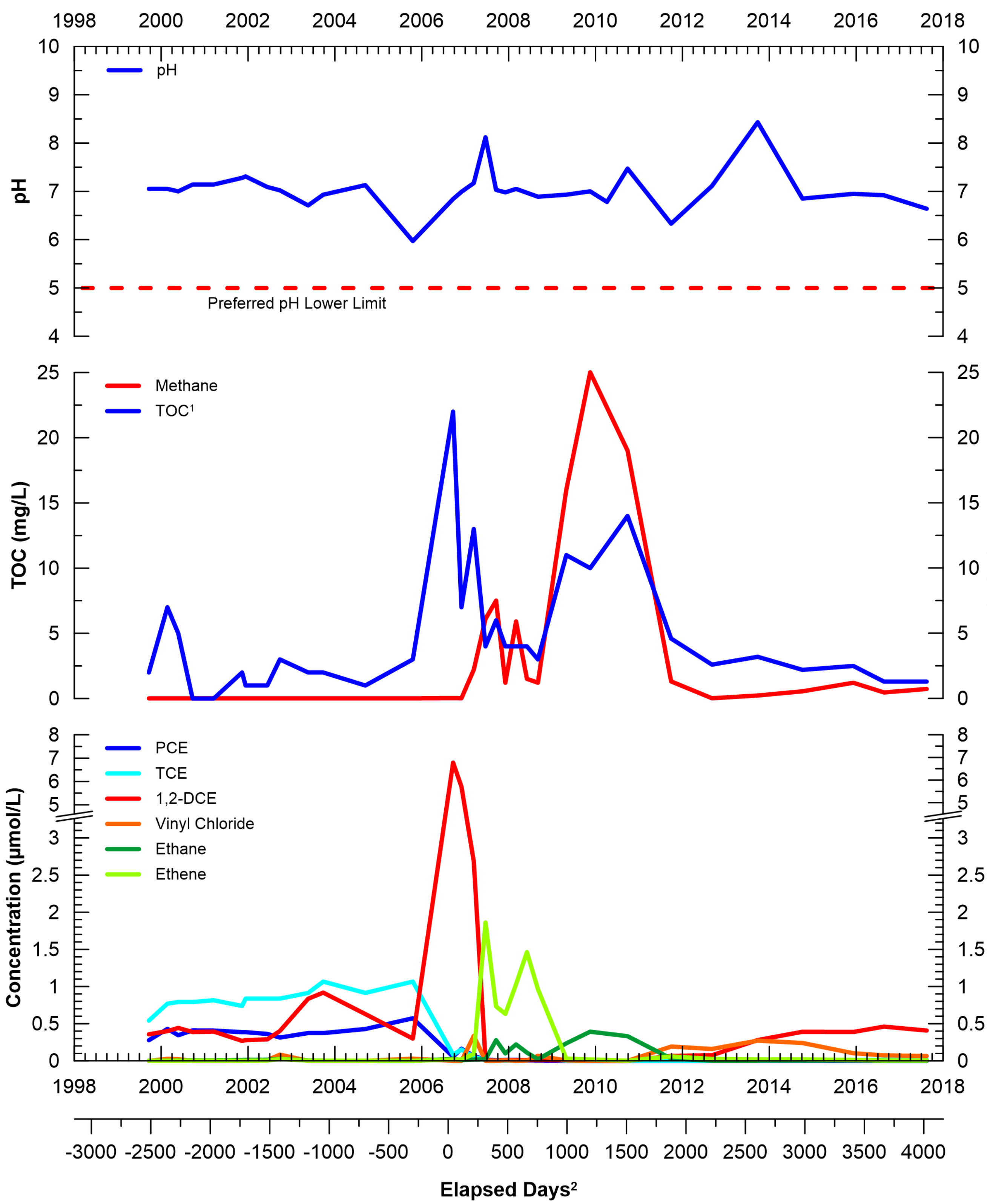
FIGURE
A-2



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

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A-3

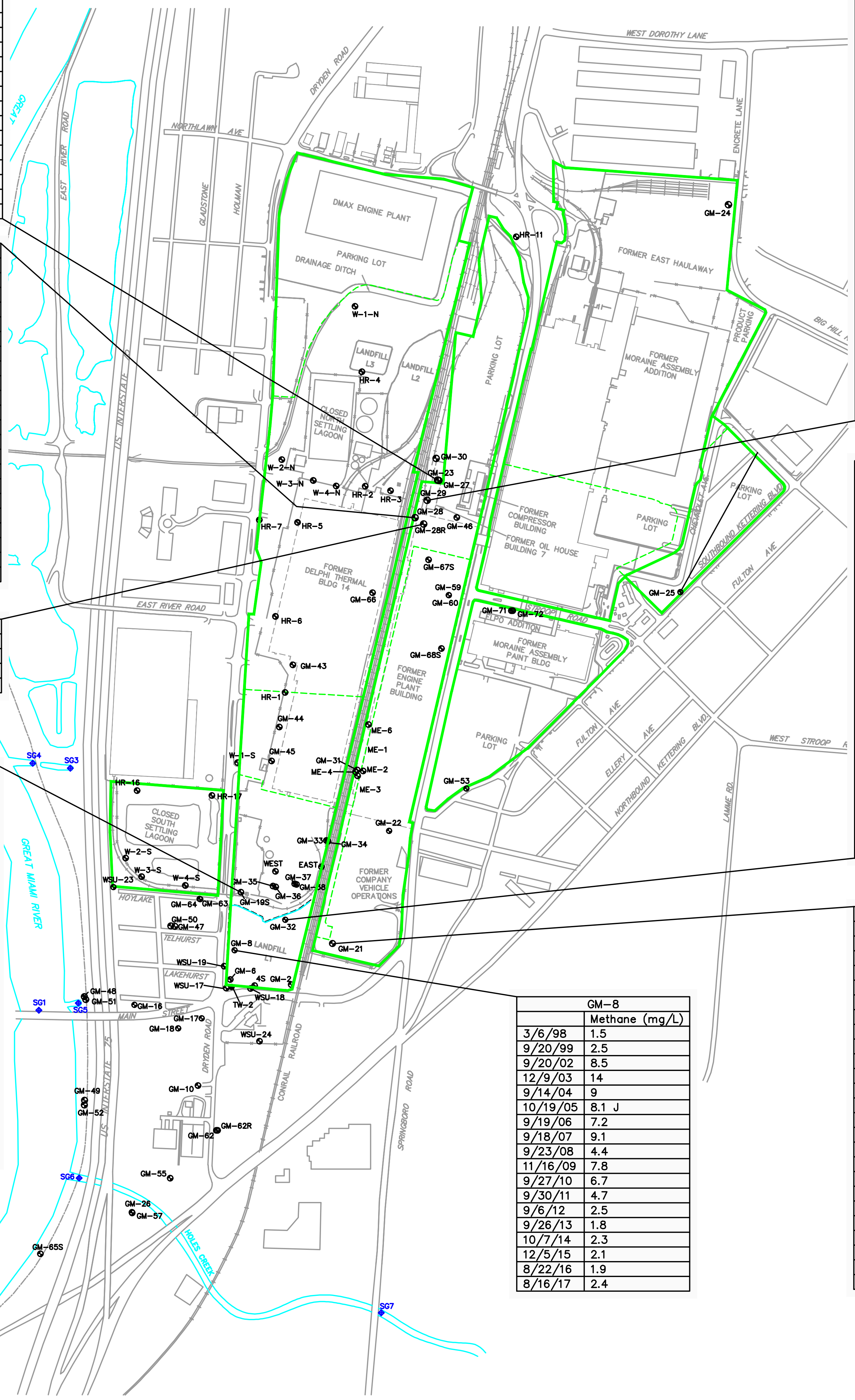
C:\Users\bsmith\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\METHANE-UPPER-080117.dwg LAYOUT: 1 SAVED: 2/7/2018 2:08 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB
PLOTTED: 2/7/2018 2:20 PM BY: SMITH, BOB
XREFS: IMAGES: PROJECTNAME: ----

GM-23	
	Methane (mg/L)
9/2/99	0.13
2/21/00	0.72
5/31/00	0.021
3/20/01	0.78
6/13/02	1.6
9/26/02	2.1
5/22/03	2.7
9/23/03	1.8
9/14/04	1.5
10/17/05	1.3
9/28/06	0.91
9/27/07	0.64
10/23/08	1.9
11/17/09	1.7
9/29/10	2.5
9/29/99	0.0019
2/22/00	0.023
5/26/00	2.6
9/30/11	2
9/7/12	2.6
9/27/13	0.84
10/10/14	5.5
12/5/15	5.4
8/22/16	4.5
8/17/17	2.6

GM-28	
	Methane (mg/L)
9/1/99	0.0025
2/23/00	0.0018
5/26/00	0.21
9/21/00	1.7
3/20/01	13
6/26/01	13
11/15/01	13
12/12/01	20
7/21/02	19
9/24/02	14
5/23/03	8.9
10/1/03	11
4/30/04	7.9
9/15/04	6.6
10/18/05	2.8
9/27/06	2.5
9/20/07	2.3
10/22/08	2.9
11/16/09	4.2
9/28/10	2.3
10/5/11	0.76

GM-28R	
	Methane (mg/L)
12/5/15	0.69
8/22/16	0.36
8/17/17	0.86

GM-19S	
	Methane (mg/L)
9/20/99	0.0099
2/23/00	0.0027
5/24/00	0.0033
9/22/00	0.0037
3/19/01	0.039
11/20/01	0.0050
12/11/01	0.0088
6/12/02	0.0020
9/26/02	0.46
5/21/03	0.0021
9/25/03	0.0022
9/13/04	0.0014
10/18/05	< 0.0065 U
9/21/06	0.025
9/17/07	7.5
9/23/08	0.79
11/17/09	25
9/27/10	19
9/29/11	1.3
9/6/12	0.0090
9/26/13	0.22
10/7/14	0.54
12/5/15	1.2
8/22/16	0.46
8/16/17	0.72



GM-29	
	Methane (mg/L)
9/1/99	0.012
2/22/00	0.0077
5/26/00	0.00017
9/21/00	1.6
3/20/01	1.3
6/26/01	1.5
11/13/01	0.61
12/12/01	1.2
6/13/02	0.56
9/25/02	1.1
5/22/03	0.6
9/24/03	1.5
9/15/04	3.8
9/29/99	0.0043
2/22/00	0.026
5/26/00	0.88
10/17/05	13
9/28/06	10
10/6/08	16
11/17/09	8.1
9/29/10	5.7
9/30/11	3.1
9/26/12	3.7
9/27/13	4.5
10/9/14	6.0
12/8/15	5.9
8/22/16	6.7
8/17/17	6.2

GM-32	
	Methane (mg/L)
9/22/99	2.7
2/28/00	7.1
5/30/00	15
9/25/00	17
3/19/01	29
11/12/01	29
12/11/01	38
6/12/02	24
9/20/02	32
5/23/03	24
10/1/03	19
9/14/04	25
10/19/05	30 J
9/19/06	26
9/18/07	26
9/23/08	25
11/16/09	NA
9/27/10	NA
9/29/11	NA
9/26/12	NA
9/27/13	NA
10/9/14	NA
12/8/15	NA
8/22/16	NA
8/16/17	NA

GM-21	
	Methane (mg/L)
9/22/99	0.037
2/23/00	0.018
5/26/00	0.014
9/22/00	0.042
3/19/01	0.048
11/13/01	0.049
12/11/01	0.035
6/12/02	0.022
9/25/02	0.03
5/22/03	0.031
9/24/03	1.5
9/14/04	0.077
10/17/05	17
9/20/06	4.9
9/26/07	30
10/3/08	28
11/16/09	28
9/28/10	23
9/29/11	15
9/7/12	12
10/9/14	15
12/5/15	17
8/22/16	16
8/17/17	13

GM-8	
	Methane (mg/L)
3/6/98	1.5
9/20/99	2.5
9/20/02	8.5
12/9/03	14
9/14/04	9
10/19/05	8.1 J
9/19/06	7.2
9/18/07	9.1
9/23/08	4.4
11/16/09	7.8
9/27/10	6.7
9/30/11	4.7
9/6/12	2.5
9/26/13	1.8
10/7/14	2.3
12/5/15	2.1
8/22/16	1.9
8/16/17	2.4

LEGEND

⊕	MONITORING WELL (UPPER AQUIFER)
●	RECOVERY WELL (TW-2)
◆	STREAM GAUGE
- - - -	FORMER BUILDING 14 FOOTPRINT
— - — -	RIVER LEVEE
▬▬	PROPERTY BOUNDARY (SOURCE: MONTGOMERY COUNTY AUDITOR'S WEBSITE, FEBRUARY 2015)
- - - -	PARCEL BOUNDARY (SOURCE: MONTGOMERY COUNTY AUDITOR'S WEBSITE, FEBRUARY 2015)
——	SURFACE WATER FEATURE

RACER TRUST
MORAINE, OHIO

OH000294.2018

UPPER AQUIFER METHANE RESULTS AT REACTIVE ZONE PERFORMANCE WELLS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A-4

APPENDIX B

Groundwater VOC Analytical Results from 1999 to 2016

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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	Ethylbenzene	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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-8	9/20/1999	1.9	30	< 1.0 U	3.4	26	21	**15**	< 1.0 U	12	**30**	**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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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
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
GM-38	8/6/2002	6	6.5	< 2.0 U	< 2.0 U	22	< 2.0 U	**50**	< 2.0 U	1.0	**25**	< 2.0 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

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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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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

Table B-1
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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
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

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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-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	2.0	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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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
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
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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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
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

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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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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
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
WEST	9/21/1999	25	26	< 1.0 U	< 1.0 U	**125**	< 1.0 U	**41**	< 1.0 U	< 1.0 U	**37**	< 1.0 U	< 1.0 U
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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

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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-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
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

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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-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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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
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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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

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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-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
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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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-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
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
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

Table B-1
Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2016
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
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.

BOLD - Result above MCL.

cis-1,2-DCE - cis-1,1-Dichloroethene.

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.

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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-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	69.0	**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

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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-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
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

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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-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	**120.0**	< 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

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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-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
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

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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
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

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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
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
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**	0.70 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

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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-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

Table B-2
Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2016
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-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
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

Table B-2
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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-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
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

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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-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
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
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 unusable - collapsed screen.
1,1,1-TCA - 1,1,1-Trichloroethane.
1,1-DCA - 1,1-Dichloroethane.
1,1-DCE - 1,1-Dichloroethene.
BOLD - Result above MCL.
cis-1,2-DCE - cis-1,1-Dichloroethene.
F1 - MS and/or MSD Recovery is outside acceptance 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. Actual concentration is expect lower.

MCL - Maximum Contaminant Level.
PCE - Tetrachloroethene.
trans-1,2-DCE - trans-1,2-Dichloroethene.
TCE - Trichloroethene.
U - Constituent not detected above laboratory limit shown.
ug/L - Micrograms per Liter.
VOCs - Volatile Organic Compounds.

APPENDIX C

Soil Boring Logs and Well Construction Diagrams

BORING/WELL CONSTRUCTION LOG

WELL NO.: **RMW-95**

TOTAL DEPTH: **22** **feet bls**

ARCADIS

PROJECT INFORMATION

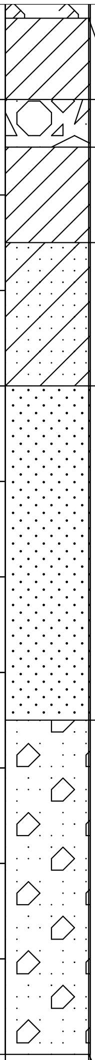
CLIENT:	**RACER Trust**
SITE LOCATION:	**Moraine Facility**
CITY, STATE:	**OH000294.2017.0004B**
PROJECT NUMBER:	**Dayton, Ohio**
LOGGED BY:	**Kari Eldridge**
DATE STARTED:	**7/26/2017**
DATE COMPLETED:	**7/26/2017**

DRILLING INFORMATION

DRILLING CO.:	**EnviroCore**
DRILLER:	**Ray Cord/Aaron James**
DRILLING METHOD:	**Direct Push/HSA**
GROUND ELEVATION:	**716.0 feet AMSL**
NORTHING:	**619596.2**
EASTING:	**1480977.0**

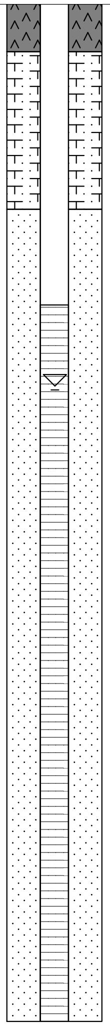
DEPTH (feet)	Recovery (inches)	PID (ppm)
0 - 2	Hand Auger	0.0
2 - 4	Hand Auger	0.0
4 - 6	Hand Auger	0.0
6 - 8	21	NM
8 - 10	40	NM
10 - 12		NM
12 - 14	37	NM
14 - 16		NM
16 - 18	30	NM
18 - 20		NM
20 - 22	17	0.0

Soil Symbols



USCS Classification	SOIL DESCRIPTION
TOPSOIL	(0.0 - 0.3) TOPSOIL.
CL	(0.3 - 2.0) CLAY, little silt, some sand, little granules to small cobbles, angular to round, low plasticity, moist, brown.
FILL	(2.0 - 3.0) FILL, large cobble-sized chunks of concrete, some clay and sand, moist, brown.
CL	(3.0 - 5.0) CLAY, little silt, some sand, little granules to small cobbles, angular to round, low plasticity, moist, brown.
SC	(5.0 - 8.0) SAND, very fine to medium grain, poorly sorted, angular, some clay and silt, trace organic material and shells, moist, brown.
SW	(8.0 - 15.0) SAND, fine to coarse, poorly sorted angular to round, trace silt, trace shell fragments, loose, wet, brown.
GW	(15.0 - 22.0) GRANULES to large PEBBLES, angular to round, liitle sand, trace silt, poorly sorted, medium dense, tan.
	End of boring 22 feet.

WELL CONSTRUCTION DETAILS



Concrete (0 to 1 ft)

2" PVC Casing (0 to 6.3 ft)

Bentonite Pellets (1 to 4.3 ft)

Sand No. 5 (4.3 to 21.3 ft)

2" PVC Screen (6.3 to 21.3 ft)

2" PVC Screen (6.3 to 21.3 ft)

Notes:
bls: below land surface
in.: inch
AMSL: Above Mean Sea Level
TOC: Top of Casing
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet
NM: Not Measured
PID data not collected due to a temporary malfunction.
HSA: Hollow Stem Auger
Date: 2/8/2018
Page: 1 of 1
Flush-Mount Surface Completion

BORING/WELL CONSTRUCTION LOG

WELL NO.: **RMW-96**

TOTAL DEPTH: **24** **feet bls**

PROJECT INFORMATION

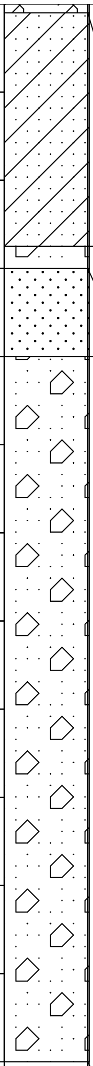
CLIENT: **RACER Trust**
SITE LOCATION: **Moraine Facility**
CITY, STATE: **OH000294.2017.0004B**
PROJECT NUMBER: **Dayton, Ohio**
LOGGED BY: **Kari Eldridge**
DATE STARTED: **7/27/2017**
DATE COMPLETED: **7/27/2017**

DRILLING INFORMATION

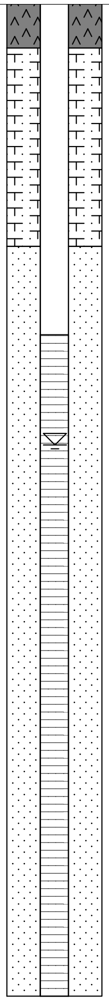
DRILLING CO.: **EnviroCore**
DRILLER: **Ray Cord/Aaron James**
DRILLING METHOD: **Direct Push/HSA**
GROUND ELEVATION: **717.1 feet AMSL**
NORTHING: **618973.8**
EASTING: **1481026.2**

DEPTH (feet)	Recovery (inches)	PID (ppm)	USCS Classification	SOIL DESCRIPTION
0	Hand Auger	0.0	TOPSOIL	(0.0 - 0.2) TOPSOIL.
			SC	(0.2 - 5.5) SAND, poorly sorted, very fine to medium, little clay and silt, trace shell fragments, loose, moist, dark brown.
2	Hand Auger	0.0		
4	Hand Auger	0.0	GW	(5.5 - 6.0) GRANULES to large PEBBLES, some fine to coarse sand, poorly sorted, angular to round, loose, moist, brown.
6	11	0.0	SW	(6.0 - 8.0) SAND, poorly sorted, very fine to medium, little clay and silt, trace shell fragments, loose, moist, dark brown.
8	24	0.0	GW	(8.0 - 24.0) GRANULES to very large PEBBLES, some fine to coarse sand, poorly sorted, angular to round, loose, moist, brown. Note: saturated at 10 feet.
10		0.0		
12	27	0.0		
14		0.0		
16	34	0.0		
18		0.0		
20	30	0.0		
22		0.0		
24				End of boring at 24 feet.
26				

Soil Symbols



WELL CONSTRUCTION DETAILS



Concrete (0 to 1 ft)

2" PVC Casing (0 to 7.5 ft)

Bentonite Pellets (1 to 5.5 ft)

Sand No. 5 (5.5 to 22.5 ft)

2" PVC Screen (7.5 to 22.5 ft)

Notes:
bls: below land surface
in.: inch
AMSL: Above Mean Sea Level
HSA: Hollow Stem Auger
TOC: Top of Casing
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet
NM: Not Measured

Date: 2/8/2018
Page: 1 of 1
Flush-Mount Surface Completion

BORING/WELL CONSTRUCTION LOG

WELL NO.: **RMW-97**

TOTAL DEPTH: **24** **feet bls**

PROJECT INFORMATION

CLIENT:	**RACER Trust**
SITE LOCATION:	**Moraine Facility**
CITY, STATE:	**OH000294.2017.0004B**
PROJECT NUMBER:	**Dayton, Ohio**
LOGGED BY:	**Kari Eldridge**
DATE STARTED:	**7/26/2017**
DATE COMPLETED:	**7/27/2017**

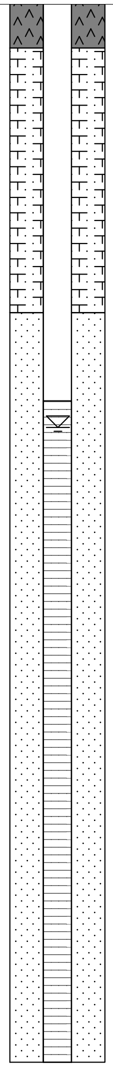
DRILLING INFORMATION

DRILLING CO.:	**EnviroCore**
DRILLER:	**Ray Cord/Aaron James**
DRILLING METHOD:	**Direct Push/HSA**
GROUND ELEVATION:	**714.8 feet AMSL**
NORTHING:	**618501.5**
EASTING:	**1480934.2**

DEPTH (feet)	Recovery (inches)	PID (ppm)
0	Hand Auger	0.0
2	Hand Auger	0.0
4	Hand Auger	0.0
6	17	0.0
8	31	0.0
10		0.0
12	36	0.0
14		0.0
16	35	0.0
18		0.0
20	36	0.0
22		0.0
24		
26		

USCS Classification	SOIL DESCRIPTION
TOPSOIL	(0.0 - 0.4) TOPSOIL.
CL	(0.4 - 5.0) CLAY, little silt and very fine sand, trace shell fragments, medium plasticity, no dilatancy, moist, black-brown.
SC	(5.0 - 6.5) SAND, very fine to medium grain, angular to round, some clay, trace shell fragments, moist, dark brown.
SW	(6.5 - 7.0) SAND, little shell fragments, fine to medium grain, poorly sorted, angular to round, loose, dry, moist, brown.
SC	(7.0 - 9.5) SAND and CLAY, very fine to medium grained sand, little hell fragments, soft, very moist, dark brown.
SW	(9.5 - 10.0) SAND, fine to coarse, some granules to small pebbles, poorly sorted, angular to round, loose, wet, tan.
SW	(10.0 - 13.0) SAND, little shell fragments, fine to medium grained sand, poorly sorted, angular to round, loose, wet, tan.
GW	(13.0 - 24.0) GRANULES to very large PEBBLES, little fine to coarse sand, poorly sorted, angular to round, trace shell fragments, loose, wet, brown. Note: trace silt from 13 to 15 feet.
	End of boring at 24 feet.

WELL CONSTRUCTION DETAILS



Concrete (0 to 1 ft)

2" PVC Casing (0 to 9 ft)

Bentonite Pellets (1 to 7 ft)

Sand No. 5 (7 to 24 ft)

2" PVC Screen (9 to 24 ft)

Notes:

bls: below land surface
in.: inch
AMSL: Above Mean Sea Level
HSA: Hollow Stem Auger
TOC: Top of Casing
USCS: Unified Soil Classification System
ppm: parts per million
PID: Photo-ionization Detector
ft: feet
NM: Not Measured

Date: 2/8/2018
Page: 1 of 1
Flush-Mount Surface Completion

MCD
MIAMI CONSERVANCY DISTRICT

38 E. Monument Ave.
Dayton, OH 45402
(937) 223-1271

July 21, 2017

RECEIVED JUL 31 2017

Ms. Pamela Barnett
Revitalizing Auto Communities
Environmental Response Trust
500 Woodward Avenue, Suite 2650
Detroit, Michigan 48226-3416

RE: MCD Land Use Permit No. 13-3313-1, Rev. 2

Dear Ms. Barnett:

Enclosed is your signed copy of the above-referenced permit.

The permit authorizes the right to use land owned and/or controlled by The Miami Conservancy District.

If you have any questions or need further information, please call me at (937) 223-1278 Ext. 3230.

Sincerely,

Roxanne H. Farrier
Property Administrator

Enclosure

MCDWATER.ORG

The Miami Conservancy District

LAND USE PERMIT NO. 13-3313-1

Revision No. 2

THE MIAMI CONSERVANCY DISTRICT, a body corporate and political subdivision of the State of Ohio, hereinafter called "MCD", in consideration of compensation as specified within this Permit, and subject to the terms, conditions and restrictions hereinafter set forth, hereby grants to

REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE TRUST (RACER)
500 WOODWARD AVENUE, SUITE 2650
DETROIT, MICHIGAN 48226

hereinafter called the "Grantee" the authority and permission to use that portion of MCD property as further described below for the following specified use and for no other use without express written consent by MCD.

The right to use, maintain and remove the following as shown on the attached photo, Exhibit "A" and located as shown on the attached, Exhibit "B":

5 – Existing MONITORING WELLS (GM-48, GM-49, GM-79, GM-80, & GM-81)

1 – Existing SHALLOW MONITORING WELL (GM-51)

1 – Existing TOP OF TILL MONITORING WELL (GM-52)

1 – Existing SHALLOW MONITORING WELL (GM-65S)

1 – Existing TOP OF TILL MONITORING WELL (GM-65D)

ALSO

The right to construct, use, maintain and remove the following to be located as shown on the attached, Exhibit "B":

3 – New MONITORING WELLS (RMW-95, RMW-96, & RMW-97)

ALSO

The right to construct, use, maintain and remove **Additional MONITORING WELLS or SOIL BORINGS** as required. The Grantee AGREES to submit final design and location plans for additional wells. Furthermore, the Grantee AGREES to verbally notify MCD at least 24 hours prior to physical installation of any additional wells or soil borings. All wells constructed on MCD property are to be "flush-mounted," ground level construction, with no casings above finished grade that could potentially interfere with flood protection.

The property, **Part MCD Parcel No. 1363, 1366, 1370, 1383-3, 1383-8, 1406, 1412, & 1421** is located in the City of Moraine, Montgomery County, Ohio, and more specifically along both sides of the Great Miami River upstream and downstream of Sellars Road (Main Street) Bridge as shown on the attached Exhibit "C".

All real property, easements, land, structures, infrastructure, and facilities that are owned or controlled by MCD or any MCD subdistrict shall hereinafter be called "MCD property."

THIS PERMIT IS GRANTED SUBJECT TO COMPLIANCE WITH THE FOLLOWING TERMS, CONDITIONS AND RESTRICTIONS AS SET FORTH BY MCD IN ACCORDANCE WITH SECTION 6101.19 OF THE OHIO REVISED CODE:

1. PROPERTY USE, MAINTENANCE & RESTRICTION: The Grantee AGREES to maintain all property as authorized for use within this Permit. Maintenance shall include regular inspection and repair of the monitoring wells and appurtenances. The Grantee AGREES to remove trash and debris created by items in this Permit.

Whenever the employees, agents, or contractors of said Grantee enter upon MCD property, for the purpose of maintaining, modifying, repairing or removing any structures and/or improvements as described within this Permit, the Grantee AGREES all operations will be confined to a reasonable area adjacent to said structures and/or improvements.

The Grantee AGREES all MCD property will be continually used and maintained in a safe and responsible manner that does not affect MCD operations and maintenance.

The Grantee must contact MCD prior to performing any repairs or maintenance on MCD property that would result in any land disturbance.

The Grantee, prior to initiating any land disturbing activity, AGREES to contact OUPS to determine if there are any utilities located within the permit area. The Grantee further AGREES to protect all identified utilities from damage that could result from land use as outlined within this Permit.

All activities listed in the attached Exhibit "D" are prohibited unless specifically authorized in this permit.

The Grantee AGREES all use of vehicles on MCD property shall be in compliance with the Ohio Revised Code and other applicable laws.

Driving any type vehicle on levee slopes is prohibited.

The Grantee AGREES no person shall remove or damage any barricade or gate.

2. DAMAGE TO MCD PROPERTY: Any damages, resulting from the land use granted, caused to the levees, dams, roads, gates, wells, gages, monitoring equipment, monuments and/or MCD property shall be repaired or replaced in a manner satisfactory to MCD as more specifically defined in Exhibit

"E" of this Permit. Revocation, termination or expiration of the permit does not release the Grantee from its obligation to repair damages. In the event the repair or replacement is not completed in a reasonable amount of time, MCD may, at its option, cause said repairs or replacements to be accomplished and Grantee shall reimburse MCD for any expenses incurred.

3. TERM: The term of this Permit shall begin on **July 18, 2017 and terminate on July 31, 2021**.

Upon issuance of this Permit all terms, conditions and restrictions of MCD Land Use Permit No. 13-3313-1, Revision No. 1, as issued to Revitalizing Auto Communities Environmental Response Trust (RACER) on August 1, 2016 will terminate.

4. MCD's RIGHT OF REVOCATION

a. If the property use causes damage or imminent damage to MCD property, or creates a health or safety hazard, MCD will order all use by the Grantee be stopped immediately and notify the Grantee to repair or replace MCD Property and remove the hazard. If the Grantee fails to respond in the time set by MCD, MCD will revoke the rights granted by this Permit. Such revocation would not release the Grantee from its obligation to restore the land as required by item 6 below.

b. If, at any time, in the opinion of MCD, the said use interferes with the primary objectives of MCD; or should the best interests of MCD so justify; this Permit shall be revoked. MCD will provide seven (7) days written notice of revocation. Such revocation would not release the Grantee from its obligation to restore the land as required by item 6 below.

5. GRANTEE'S RIGHT OF TERMINATION: The Grantee may request termination of this Permit if the use of MCD property described in this Permit is no longer necessary or desired. The Grantee shall notify the MCD Property Administrator within forty-eight (48) hours following cessation of the permitted land use to request termination.

6. RESTORATION: Prior to termination of this Permit, the Grantee AGREES to remove or properly abandon all structures and/or improvements and repair or restore all MCD property as specified in Exhibit "E" of this Permit. Revocation, termination or expiration of the permit does not release the Grantee from its obligation to restore the property. In the event the Grantee does not restore or remove the said structures and/or improvements within a timely manner, MCD may, at its option, cause said work to be accomplished and Grantee shall reimbursed MCD for any expenses incurred.

7. FINAL INSPECTION: Within forty-eight (48) hours following cessation of the permitted use and all restoration, the Grantee AGREES to notify the MCD Property Administrator for final inspection.

8. OPTION OF RENEWAL: This Permit may be renewed, subject to MCD approval, provided all terms, conditions, and restrictions of the Permit have been maintained to the reasonable satisfaction of MCD. **All renewals will be subject to those terms, conditions, and Permit fees in effect at time of renewal.**

9. INSURANCE: MCD is to be insured in an amount not less than **One Million ($1,000,000) Dollars**, from any liability resulting from injuries to persons or property and all direct cost and expenses associated therewith. Prior to issuance of this Permit the Grantee AGREES to provide to MCD verification of liability coverage naming "**The Miami Conservancy District**" as an additional insured for an amount of not less than **One Million ($1,000,000) Dollars**. The Grantee must provide MCD a copy of a certificate of liability verifying that MCD has been named as an additional insured. Insurance coverage must be in force throughout the term of the permit. If insurance coverage is cancelled the permit will terminate.

10. SOIL & WATER CONTAMINATION: The Grantee AGREES to assume all liability and responsibility for clean-up and restoration required due to soil and water contamination resulting from the land use granted within this Permit.

11. RELEASE OF LIABILITY: The Grantee herein releases MCD, to the extent permitted by law, from any and all liability resulting from injuries to persons or property and all direct cost and expenses associated therewith, resulting from or caused by floodwater, maintenance or construction operations and/or any other activities of MCD, its agents, employees or contractors provided such damages were not caused by the negligent act or omission of MCD, its agents, employees or contractors.

12. RIGHT OF ACCESS: MCD, shall at all times, have the right to enter upon any MCD property for the purpose of using, monitoring, maintaining, altering or repairing any works, or improvements owned or controlled by MCD. MCD retains the right to photograph, for private and/or public use, any use, work or event, which takes place on MCD property.

MCD shall have the right of inspection to determine compliance with this Permit. Upon notification of any violation, the Grantee AGREES to promptly take corrective action as directed by MCD. Should corrective action not be taken within the time specified, MCD may revoke this Permit, subject to the terms and conditions as stated within this Permit.

13. TRANSFER OF LAND USE RIGHTS: Land use granted by this Permit is NOT assignable or transferable.

14. PRE-EXISTING LAND USE RIGHTS: All rights granted within this Permit will be limited by, and subject to, any rights and claims of record that exist prior to the effective date of this Permit, regarding all property described within this Permit. Said claims of record include, but are not limited to, any existing easements, right-of-ways, and/or permits.

15. ADDITIONAL RIGHTS: MCD does not claim full warranty deed ownership to all MCD property. The Grantee must accept full responsibility for acquiring any additional rights to property not owned by MCD, when use of such property is necessary for the purposes of this Permit. Furthermore, MCD, in granting land use authorization, is to be released from any additional expense and/or all liability related to any unauthorized use of property.

16. PUBLIC DISCLOSURE: All MCD records, including deeds, leases, permits and all related correspondence, will be considered public records and shall be available for public use and disclosure.

17. COMPLIANCE WITH LAWS: The Grantee AGREES that MCD property is not to be used or occupied for any unlawful purpose. Additionally, all use of MCD property will comply with all laws, ordinances, rules, regulations, requirements, and orders of the United States of America, the State of Ohio, and of all governmental authorities or agencies, including, without limitation, all bureaus, boards or officials thereof respecting said premises and the use and occupation thereof.

18. ADDITIONAL IMPROVEMENTS: The Grantee AGREES no additional temporary or permanent structures and/or improvements will be constructed by the Grantee on MCD property without prior written MCD approval.

19. GROUNDWATER DATA: The Grantee AGREES, **within sixty (60) days of initial construction of any well**, to provide MCD an initial sampling and analysis report.

The Grantee further AGREES, **within thirty (30) days following completion**, to furnish MCD copies of all well logs and test boring reports.

The Grantee AGREES, **within thirty (30) days of completion**, to furnish MCD a copy of all reports of investigations concerning the capacity of the wells, aquifer characteristics, and quality of the aquifer.

The Grantee also AGREES, upon written request to provide copies of existing and future water levels and water quality data.

The Grantee authorizes MCD to access any of the monitoring wells listed within this agreement for the purposes of monitoring groundwater levels and quality should it be necessary to assure public safety and/or maintain the required level of flood protection.

20. PERMIT FEE: No Permit Fee is required for this update.

EXHIBIT D - PROHIBITED USE

The following activities are prohibited on MCD property:

a. Violating any federal, state, county, municipal, or other applicable law, ordinance, rule, regulation or requirement.

b. Soliciting.

c. Abandoning any animal.

d. Lighting fires or burning any materials.

e. Sledding, skiing, or ice skating.

f. Camping.

g. Operating any vehicle on dam or levee slopes.

h. Moving, by-passing, or damaging any gate, barricade or barrier so placed to temporarily or permanently close a road or area to traffic.

i. Hunting and trapping.

j. Depositing burning material or hot ashes on grass, plants or in refuse receptacles.

k. Dumping, depositing or discarding, intentionally or unintentionally, any trash, garbage, building debris, rubble, metal, concrete, asphalt, organic waste, or other noxious materials.

l. Damaging, destroying, or disturbing any MCD land as described below:

    1. Removing any property, structures, facilities, or amenities, or any part thereof.

    2. Writing upon, painting, cutting, mutilating, defacing, or damaging in any manner any building, flood control structure, equipment, or other property, or part thereof.

    3. Climbing or rappelling any flood control structure, rock escarpment or other natural features.

    4. Willfully destroying, injuring or removing any bench marks, witness marks, stakes, or other reference marks (ORC 6101.81).

    5. Disturbing, defacing, removing, or injuring trees or other vegetation.

EXHIBIT "E"

RESTORATION REQUIREMENTS

All MCD owned or controlled property disturbed by land use and/or construction will be restored to the reasonable satisfaction of MCD **within thirty (30) days** of project completion as follows.

Restoration of Levee Slopes:

1. The Grantee shall restore MCD property with fill material free of loam, roots, organic matter, boulders and other unsuitable material. MCD reserves the right to reject any fill material. Fill may not be placed on wet or frozen subgrade.

   Material shall be placed in six (6) inch lifts and compacted using suitable compaction equipment. Compaction of the material shall be 95% Standard Proctor as determined by a certified testing company. Testing will be performed every four (4) feet of height. Copies of all compaction and laboratory test reports shall be provided to MCD.

2. **Within seven (7) days of construction**, all levee slopes disturbed by construction will be seeded as pre-approved and/or directed by the MCD Caretaker. Should seeding prove inadequate, the Grantee AGREES to sod any or all levee slopes disturbed by construction as directed by MCD. The Grantee AGREES to properly monitor and maintain the restoration process of all levee slopes disturbed by construction until sufficient turf has been established.

3. MCD inspection and approval must be acquired prior to obtaining all other necessary approvals.

Restoration of Pavement, Recreation trails (asphalt)

1. Depending of the severity of damage to the recreation trail, MCD shall require either, pavement planing (milling) and a surface course of asphalt be applied or full depth replacement with intermediate and surface courses of asphalt per MCD's typical recreation trail section drawings.

2. Full depth replacement will require sub-base to be compacted to 95% Standard Proctor.

3. Base shall consist of 8" of ODOT ITEM 304 aggregate base material compacted to 95% Standard Proctor.

4. See typical recreation trail section drawings located at the end of this Permit for asphalt concrete details.

5. For asphalt roads, parking lots, and all other asphalt surfaces, MCD will determine the design on a per project basis.

6. Concrete roads, trails and parking lots disturbed shall be restored to their original lines and grades. Remove all damaged areas by saw-cutting to provide a clean square joint. The concrete for the pavement shall be Class QC1 per ODOT ITEM 499. All replacement concrete pavement shall be dowelled into existing pavement per ODOT ITEMS 509 and 510. The size and spacing of dowels shall be determined by MCD on a per project basis.

7. ODOT ITEMS are referenced to the 2013 ODOT Construction and Material Specifications.

Poles, Towers, Fences, Signs, Buildings, Bridges and other Above-Ground Structures:

1. All Structures or installations are to be removed, including bases, foundations and anchors.

2. Should they be permitted to remain, all pilings and footers should be cut off a minimum depth of three (3) feet below finished grade or bottom of channel.

Chambers and Manholes

1. Unless otherwise specified by MCD, all chambers and manholes will be removed and the area backfilled with clean fill material and compacted as required by MCD.

2. Should MCD authorize a chamber or manhole to remain, all gates, valves, meters and other equipment will be removed from the chamber or manhole and all pipes will be plugged with concrete.

3. The top cone or pre-cast section will be removed or if the chamber is cast in place or brick, the top of the chamber will be demolished to a depth of at least three (3) feet below finished grade. The chamber or manhole should be filled with gravel and the top three (3) feet backfilled with clean fill material and compacted as required by MCD.

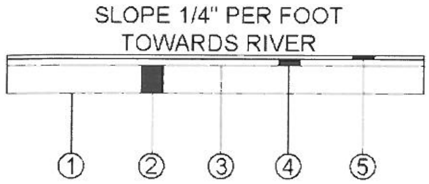
Wells:

When the Grantee has determined the operation of any well and/or facility to be no longer necessary, or upon termination of this Permit, the Grantee will, **within six (6) months,** satisfactorily complete one (1) of the following options as determined by MCD.

Option No. 1: Remove or properly abandon any or all wells and/or facilities and restore all MCD property used to the reasonable satisfaction of MCD. Removal of any well must be in accordance with the regulations of the Ohio Department of Natural Resources, Ohio Environmental Protection Agency and Local Health District.

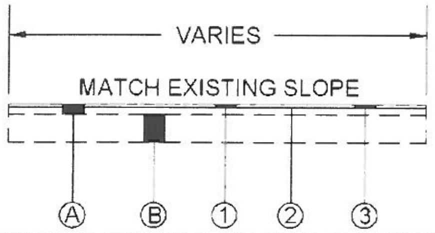
Option No. 2: At MCD's discretion, ownership of any well and/or facilities considered essential to the function of MCD, including all structures, casing, screen, and appurtenances, may be transferred to MCD in lieu of abandonment.

Should the Grantee fail, within SIX (6) MONTHS of the termination date of this Permit, to properly abandon all wells not acquired, MCD will take all necessary action to assure the proper abandonment of the wells and the Grantee AGREES to reimburse MCD for any expenses incurred thereby.



① ITEM 203 - SUBGRADE COMPACTION
② ITEM 304 - AGGREGATE BASE ~ 8" COURSE
③ ITEM 407 - TACK COAT @ 0.075 GAL/SY
④ ITEM 448 - ASPHALT CONCRETE ~ 2" INTERMEDIATE COURSE, TYPE 2, PG 64-22 PER ITEM 441.02
⑤ ITEM 448 - ASPHALT CONCRETE ~ 1" SURFACE COURSE, TYPE 1, PG 64-22 PER ITEM 441.02

TYPICAL SECTION
(FULL DEPTH REPLACEMENT)



Ⓐ EXISTING ASPHALT CONCRETE (THICKNESS MAY VARY)
Ⓑ EXISTING AGGREGATE BASE ~ 6" COURSE
① ITEM 254 - 1" PAVEMENT PLANING, ASPHALT CONCRETE
② ITEM 407 - TACK COAT @ 0.075 GAL/SY
③ ITEM 448 - ASPHALT CONCRETE ~ 1" SURFACE COURSE, TYPE 1, PG 64-22 PER ITEM 441.02

TYPICAL SECTION
(PLANING AND RESURFACING)

NOTE: ALL PAVEMENT SHALL MATCH EXISTING SLOPES OR IF NECESSARY SLOPE TOWARDS THE RIVER. AT NO TIME SHOULD THE TRAIL BE SLOPED AWAY FROM THE RIVER.

NOTE: ITEMS REFER TO ODOT 2013 CONSTRUCTION AND MATERIAL SPECIFICATIONS

I, THE GRANTEE OR AUTHORIZED REPRESENTATIVE FOR SAID GRANTEE, IN EXCHANGE FOR SUCH USE AS DEFINED WITHIN THIS PERMIT, DO HEREBY ACKNOWLEDGE ACCEPTANCE OF ALL TERMS AND CONDITIONS AS STATED WITHIN THIS PERMIT:

REVITALIZING AUTO COMMUNITIES
ENVIRONMENTAL RESPONSE TRUST (RACER)

Date: 7-19-2017

By: Pamela Barnett

Print Name: PAMELA BARNETT

Title: CLEANUP MANAGR

* * * * * * * * * *

AS AUTHORIZED REPRESENTATIVE FOR MCD I DO HEREBY GRANT APPROVAL, SUBJECT TO THE TERMS AND CONDITIONS OF THIS PERMIT, TO USE MCD PROPERTY FOR SUCH USE AS DEFINED WITHIN THIS PERMIT:

THE MIAMI CONSERVANCY DISTRICT

Date: 7/20/2017

By: ______________________
Kurt A. Rinehart, Chief Engineer

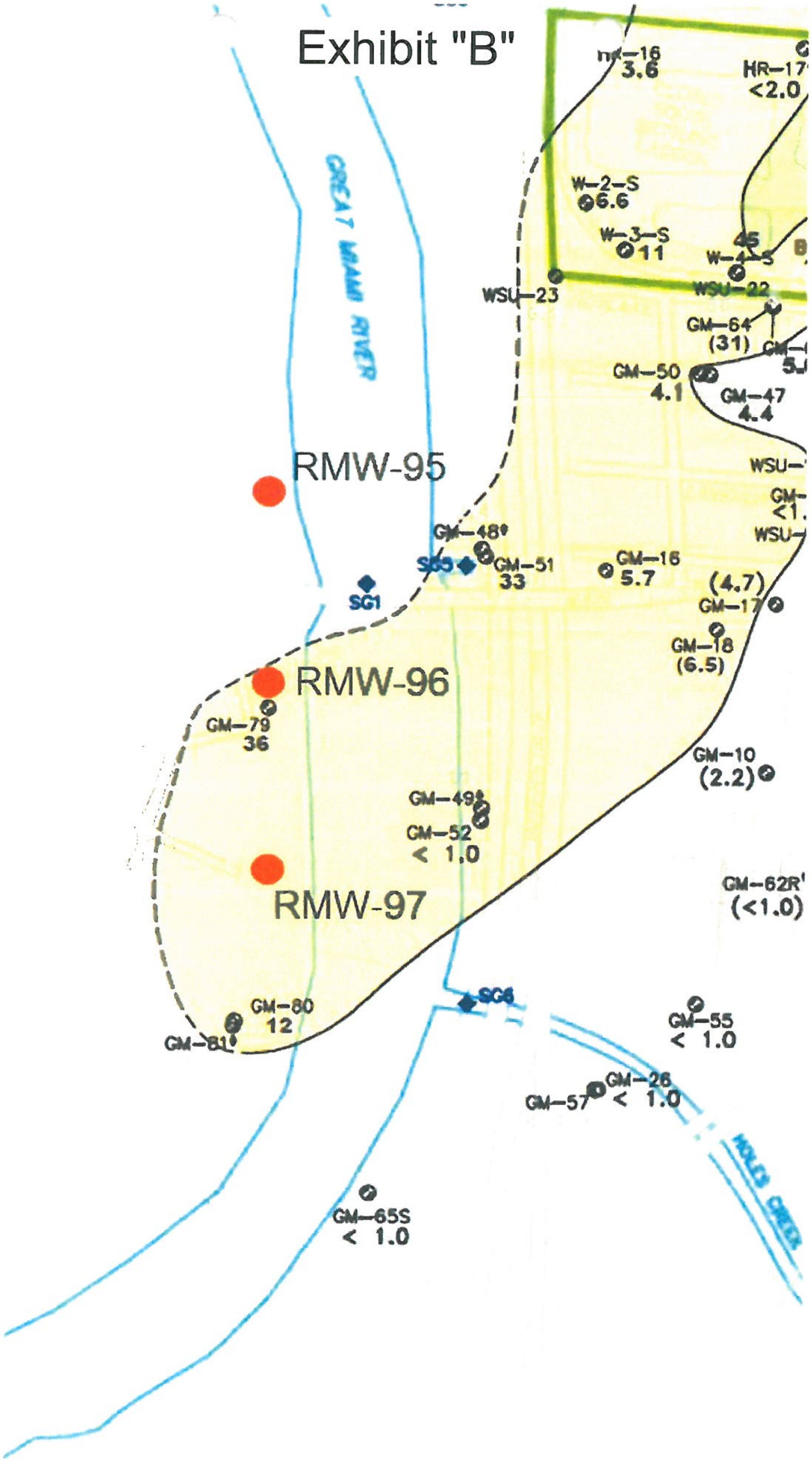
Any questions concerning this Permit or the use of MCD property shall be directed to the **MCD PROPERTY ADMINISTRATOR** Roxanne Farrier at (937) 223-1278, ext. 3230.

MCD CARETAKER: Ben Casper at (937) 886-4801 (office) or (937) 604-9750 (cell)

GRANTEE'S CONTACT PERSON: Pamela Barnett (937 / 751-8635)

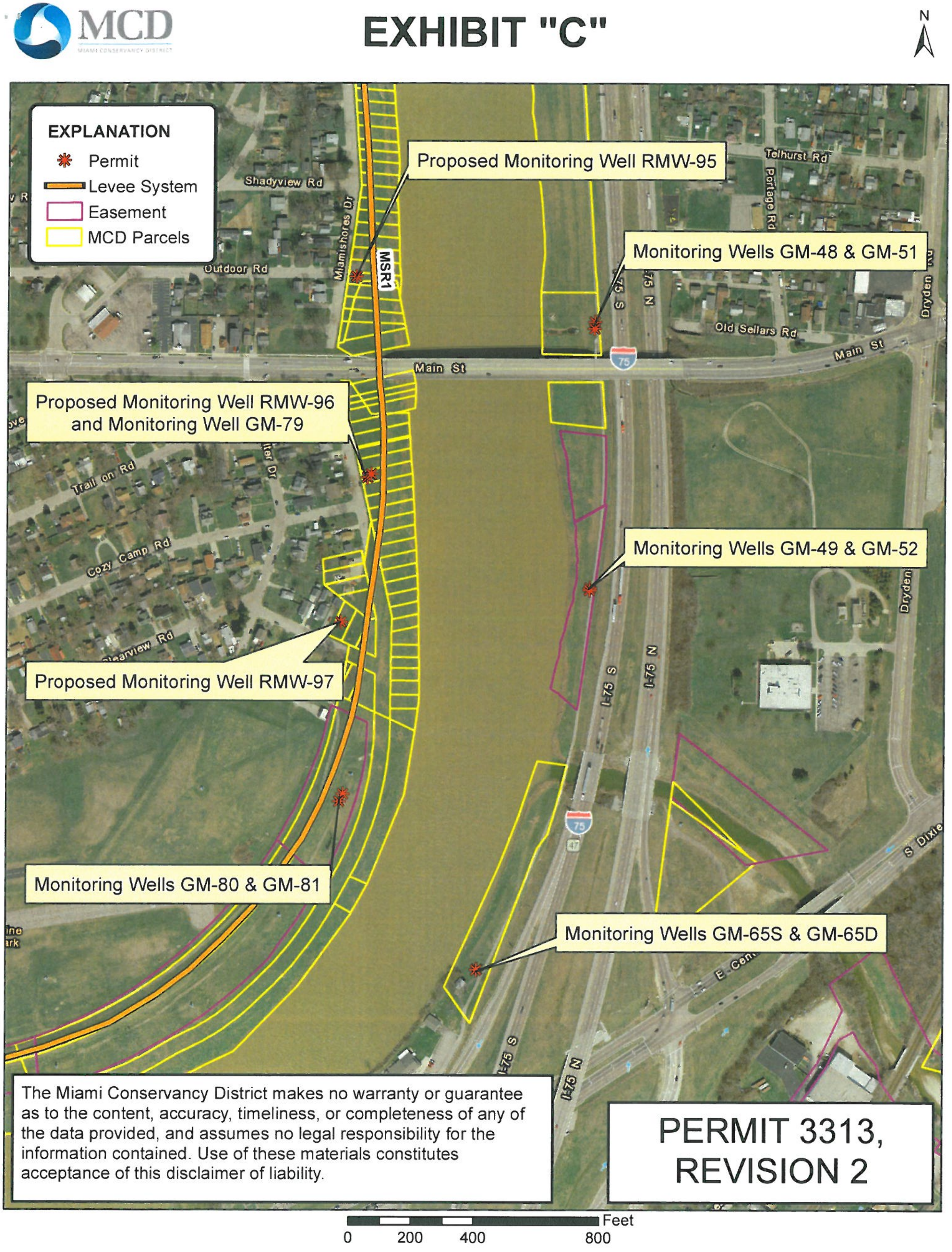
Exhibit "A"

Exhibit "B"


HR-16
3.6
HR-17
<2.0
W-2-S
6.6
W-3-S
11
45
W-4-S
WSU-23
WSU-22
GM-64
(31)
GM-50
4.1
GM-47
4.4
GREAT MIAMI RIVER
RMW-95
GM-48
SG5
GM-51
33
GM-16
5.7
(4.7)
GM-17
SG1
GM-18
(6.5)
RMW-96
GM-79
36
GM-10
(2.2)
GM-49
GM-52
< 1.0
RMW-97
GM-62R
(<1.0)
SG6
GM-80
12
GM-81
GM-55
< 1.0
GM-57
GM-26
< 1.0
HOLES CREEK
GM-65S
< 1.0

MCD

EXHIBIT "C"



PERMIT 3313,
REVISION 2

APPENDIX D

Annual Groundwater Sampling Event Field Parameters Data Sheet for 2017

Appendix D
Annual Groundwater Sampling Event Field Parameters Data Sheet for 2017
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
Upper Aquifer Wells													
GM-6	GM-6/08162017/	5.85	16.39	-107	1.260	6.89	0.450	12:19	12:59	4.7	8/16/2017	13:05	K.Eldridge
GM-8	GM-8/08162017/	6.92	16.29	-193	1.420	3.61	0.420	10:22	11:07	6.5	8/16/2017	11:10	K.Eldridge
GM-19S	GM-19S/08162017/	6.64	17.41	-138	1.180	3.72	0.600	9:55	11:00	9.0	8/16/2017	10:30	L.Crisp
GM-21	GM-21/08172017/	6.30	17.42	-76	2.340	5.08	0.490	10:07	11:07	5.8	8/17/2017	11:10	K.Eldridge
GM-23	GM-23/08172017/	6.37	18.93	-164	1.110	5.20	0.350	16:10	17:00	5.5	8/17/2017	17:05	L.Crisp
GM-28R	GM-28R/08172017/	6.23	17.48	-111	0.681	2.97	0.550	12:10	13:10	6.5	8/17/2017	13:15	L.Crisp
GM-29	GM-29/08172017/	6.75	19.54	-125	1.300	3.35	0.265	12:21	13:21	8.8	8/17/2017	13:25	K.Eldridge
GM-32	GM-32/08162017/	6.68	15.83	-105	1.320	6.36	4.058	15:30	15:46	16.1	8/16/2017	15:50	K.Eldridge
GM-79	GM-79/08012017	7.53	15.50	90	1.172	0.10	1.060	14:28	15:13	8.0	8/1/2017	15:15	K.Eldridge
GM-80	GM-80/08012017	7.30	14.39	88	1.048	0.15	0.690	9:10	9:40	4.5	8/1/2017	9:45	K.Eldridge
GM-81	GM-81/07312017	7.56	15.31	62	1.007	0.11	0.660	17:30	18:25	11.0	7/31/2017	18:30	K.Eldridge
HR-4	HR-4/08162017/	6.77	15.03	56	1.250	6.62	0.830	16:40	17:00	4.2	8/16/2017	17:05	K.Eldridge
HR-17	HR-17/08172017/	6.73	18.02	131	1.160	1.39	0.500	10:55	11:30	2.5	8/17/2017	11:25	L.Crisp
MW-5	MW-5/07312017	7.93	16.07	88	1.069	0.09	0.410	15:20	16:20	11.0	7/31/2017	16:20	K.Eldridge
RMW-95	RMW-95/08012017	7.56	15.91	71	0.808	0.71	0.690	11:04	11:59	12.7	8/1/2017	12:00	K.Eldridge
RMW-96	RMW-96/08022017	9.34	17.71	37	0.946	2.40	0.250	13:25	14:20	5.7	8/2/2017	14:21	W. Stephens
RMW-97	RMW-97/08012017	8.19	14.41	129	0.706	0.93	0.680	12:47	13:42	10.6	8/1/2017	13:45	K.Eldridge
W-2-N	W-2-N/08152017/	5.85	16.38	-35	1.220	3.36	0.560	11:56	12:21	4.6	8/15/2017	12:30	K.Eldridge
W-2-S	W-2-S/08162017/	6.29	16.47	86	1.070	5.32	0.300	16:15	17:05	3.8	8/16/2017	17:00	L.Crisp
W-3-N	W-3-N/08152017/	5.83	15.72	-59	1.210	2.93	0.910	16:11	17:01	10.9	8/15/2017	17:05	K.Eldridge
W-3-S	W-3-S/08162017/	6.57	18.91	41	0.982	1.11	0.450	15:15	15:50	2.0	8/16/2017	15:45	L.Crisp
W-4-N	W-4-N/08162017/	6.67	15.25	-18	1.440	6.75	0.490	17:49	18:09	3.1	8/16/2017	18:10	K.Eldridge
W-4-S	W-4-S/08162017/	6.42	16.92	107	1.390	1.39	0.450	14:10	14:45	3.0	8/16/2017	14:40	L.Crisp
Lower Aquifer Wells													
DN-13	DN-13/08152017/	7.38	21.36	162	0.811	8.97	NM	10:50	11:10	NM	8/15/2017	11:10	L.Crisp
GM-9	GM-9/08152017/	7.72	19.81	48	0.651	0.38	0.275	12:00	12:45	4.0	8/15/2017	12:50	L.Crisp
GM-15	GM-15/08162017/	6.28	16.71	-19	1.190	5.39	0.400	12:10	12:55	3.5	8/16/2017	12:53	L.Crisp
GM-20D	GM-20D/08152017/	7.41	16.97	109	0.756	0.59	0.600	14:55	15:35	5.0	8/15/2017	15:30	L.Crisp
HR-1	HR-1/08172017/	6.71	17.82	138	0.976	2.61	0.375	9:40	10:25	3.5	8/17/2017	10:20	L.Crisp

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 E

Groundwater Analytical Database for 2017

Appendix E
Groundwater Analytical Database for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Source Areas	Downgradient Reactive Zone Performance Wells					
	Units	MCL[1]	GM-23 8/17/2017 Upper Aquifer	GM-28R 8/17/2017 Upper Aquifer	GM-29 8/17/2017 Upper Aquifer	GM-21 8/17/2017 Upper Aquifer	GM-6 8/16/2017 Upper Aquifer	GM-8 8/16/2017 Upper Aquifer	GM-19S 8/16/2017 Upper Aquifer
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 2.0 U	< 1.0 U	9.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		5.4	0.25 J	13	11	< 1.0 U	0.44 J	2.3
1,1-Dichloroethene	ug/L	7	1.4 J	< 1.0 U	1.0 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	0.86 J	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	**580**	6.0	**430**	19	0.33 J	< 1.0 U	39
Ethylbenzene	ug/L	700	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**30**	4.6	**11**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Toluene	ug/L	1,000	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	22	< 1.0 U	16	1.5	< 1.0 U	< 1.0 U	0.52 J
Trichloroethene	ug/L	5	**8.6**	0.33 J	**280**	2.4	< 1.0 U	< 1.0 U	1.9
Vinyl chloride	ug/L	2	**360**	0.72 J	**53**	**9.7**	< 1.0 U	< 1.0 U	**4.0**
Xylene (total)	ug/L	10,000	< 4.0 U	< 2.0 U	< 4.0 U	< 2.0 U	< 2.0 U	0.31 J	< 2.0 U
Total Site-Specific VOCs	ug/L		1,007	12	814	44	0.33	1.6	48

NOTES:

* - LCS or LCSD is outside acceptance limits.

< - Constituent not detected above laboratory reporting limit shown.

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

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Appendix E
Groundwater Analytical Database for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Closed North Settling Lagoon Monitoring Results				Closed South Settling Lagoon Monitoring Results				Downgradient On-Site
	Units	MCL[1]	HR-4 8/16/2017 Upper Aquifer	W-2-N 8/15/2017 Upper Aquifer	W-3-N 8/15/2017 Upper Aquifer	W-4-N 8/16/2017 Upper Aquifer	HR-17 8/17/2017 Upper Aquifer	W-2-S 8/16/2017 Upper Aquifer	W-3-S 8/16/2017 Upper Aquifer	W-4-S 8/16/2017 Upper Aquifer	HR-1 8/17/2017 Upper Aquifer
Site-Specific Volatile Organic Compounds											
1,1,1-Trichloroethane	ug/L	200	1.9	0.28 J	< 1.0 U	< 1.0 U	0.80 J	1.3	0.62 J	1.5	1.0
1,1-Dichloroethane	ug/L		2.1	< 1.0 U	< 1.0 U	6.5	0.60 J	1.1	0.66 J	2.7	0.39 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	< 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	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	0.45 J	2.1	24	9.2	2.3	2.4	1.6	22	0.32 J
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
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	0.38 J	**150**	< 1.0 U	**68**	**39**	**56**
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
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	0.38 J	0.64 J	< 1.0 U	0.40 J	< 1.0 U	2.1	< 1.0 U
Trichloroethene	ug/L	5	< 1.0 U	1.2	< 1.0 U	**8.8**	**24**	**5.9**	**7.6**	**40**	**0.65 J**
Vinyl chloride	ug/L	2	< 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
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
Total Site-Specific VOCs	ug/L		4.5	3.6	26	26	178	11	78	107	58

NOTES:

* - LCS or LCSD is outside acceptance limits.

< - Constituent not detected above laboratory reporting limit shown.

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

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Appendix E
Groundwater Analytical Database for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

			Off-Site Downgradient of the Site										
			GM-79 8/1/2017 Upper Aquifer	GM-80 8/1/2017 Upper Aquifer	GM-81 7/31/2017 Upper Aquifer	MW-5 7/31/2017 Upper Aquifer	RMW-95 8/1/2017 Upper Aquifer	RMW-96 8/2/2017 Upper Aquifer	RMW-97 8/1/2017 Upper Aquifer	GM-15 8/16/2017 Lower Aquifer	GM-20D 8/15/2017 Lower Aquifer	GM-9 8/15/2017 Lower Aquifer	DN-13 8/15/2017 Lower Aquifer
	Units	MCL[1]											
Site-Specific Volatile Organic Compounds													
1,1,1-Trichloroethane	ug/L	200	0.60 J	0.32 J	0.26 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.23 J	0.84 J	0.93 J
1,1-Dichloroethane	ug/L		2.3	0.38 J	1.1	0.89 J	0.27 J	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	1.5
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
Benzene	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
cis-1,2-Dichloroethene	ug/L	70	5.4	1.7	1.5	1.1 J	1.4	< 1.0 U	0.62 J	7.7	< 1.0 U	< 1.0 U	5.8
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
Tetrachloroethene	ug/L	5	4.3	**20**	< 1.0 U	< 1.0 U	0.48 J	0.95 J	3.2	< 1.0 U	1.9	< 1.0 U	2.1
Toluene	ug/L	1,000	< 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	< 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	0.77 J	< 1.0 U	< 1.0 U	0.43 J
Trichloroethene	ug/L	5	**34**	**7.5**	2.0	1.7 J	**5.1**	< 1.0 U	0.63 J	**5.7**	1.1	**12**	**8.0**
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	0.58 J	< 1.0 U	< 1.0 U	0.86 J
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
Total Site-Specific VOCs	ug/L		47	30	4.9	3.7	7.3	1.3	4.5	17	3.2	13	20

NOTES:

* - LCS or LCSD is outside acceptance limits.

< - Constituent not detected above laboratory reporting limit shown.

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

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

Appendix E
Groundwater Analytical Database for 2017
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	MCL[1]	DUPLICATE 8/17/2017 QA/QC	DUPLICATE 8/16/2017 QA/QC	UNK-Dup 7/31/2017 QA/QC	EQUIPMENT BLANK 8/15/2017 QA/QC	EQUIPMENT BLANK 8/16/2017 QA/QC	EQUIPMENT BLANK 8/16/2017 QA/QC	EQUIPMENT BLANK 8/17/2017 QA/QC	EQUIPMENT BLANK 8/17/2017 QA/QC	EQUIPMENT BLANK 8/17/2017 QA/QC	TRIP BLANK 8/15/2017 QA/QC	TRIP BLANK 8/17/2017 QA/QC	TRIP BLANK 8/17/2017 QA/QC
Site-Specific Volatile Organic Compounds														
1,1,1-Trichloroethane	ug/L	200	0.87 J	< 1.0 U	0.27 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
1,1-Dichloroethane	ug/L		0.61 J	2.6	1.1	< 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
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	< 1.0 U	< 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	2.6	41	1.5	< 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
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	**160**	**< 1.0 U**	< 1.0 U	< 1.0 U	< 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	< 1.0 U *	< 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	0.50 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
Trichloroethene	ug/L	5	**26**	**1.7**	2.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	< 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	< 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		190	50	4.9	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

NOTES:

* - LCS or LCSD is outside acceptance limits.

< - Constituent not detected above laboratory reporting limit shown.

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

BOLD - Result above MCL.

ug/L - Micrograms per Liter.

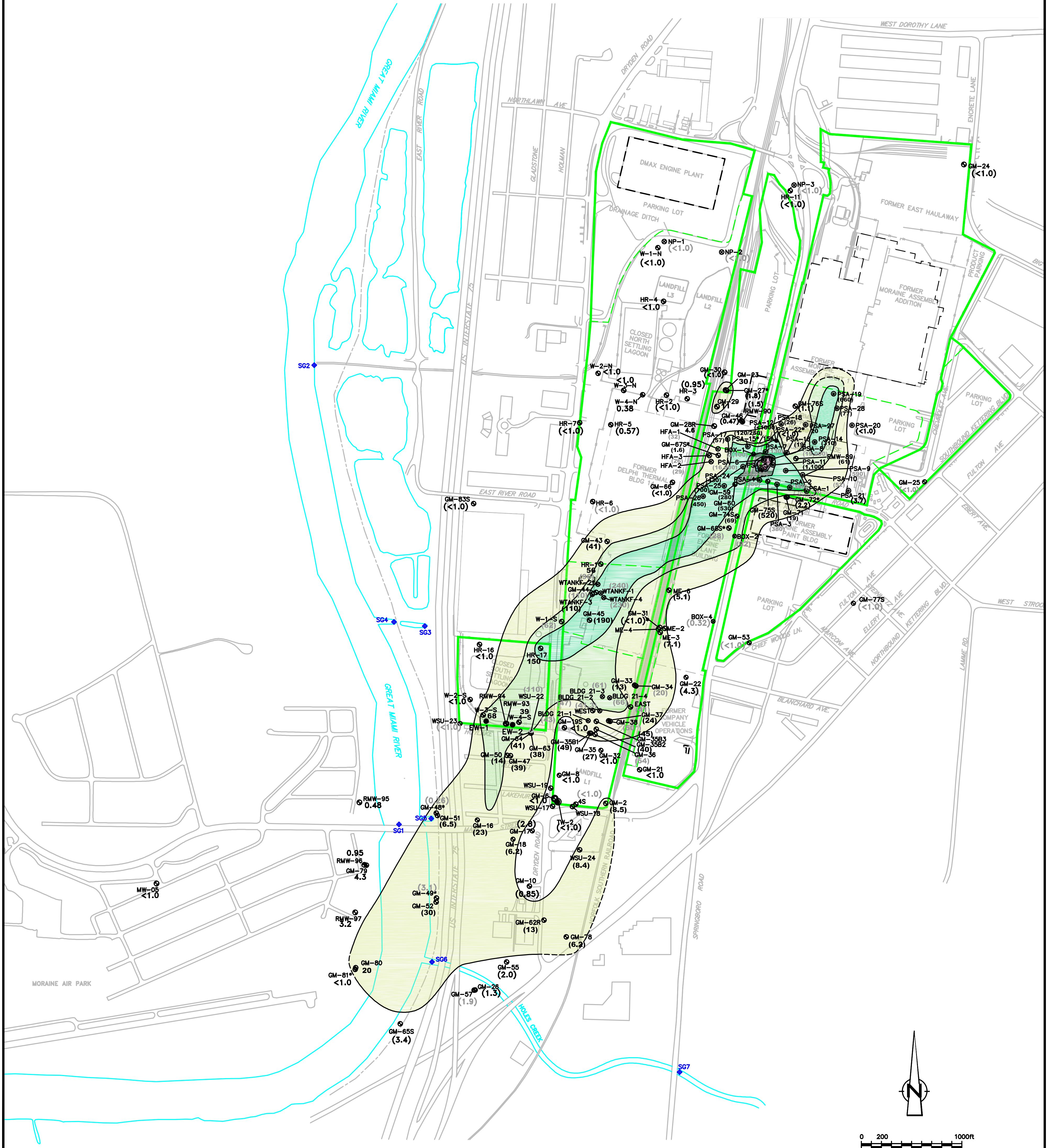
MCL - Maximum Contaminant Level.

J - Value is estimated.

U - Constituent not detected above laboratory reporting limit shown.

APPENDIX F

Isoconcentration Maps



LEGEND

◕	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW−1, EW−2, AND TW−2)
⌖	STREAM GAUGE
⊗/◉	BORING LOCATION
— – —	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	2017 CONCENTRATIONS
(<1.0)	2016−2013 CONCENTRATIONS
(<1.0)	PRE−2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

▨	>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 2017 MONITORING WELL RESULTS, 2016 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.

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**

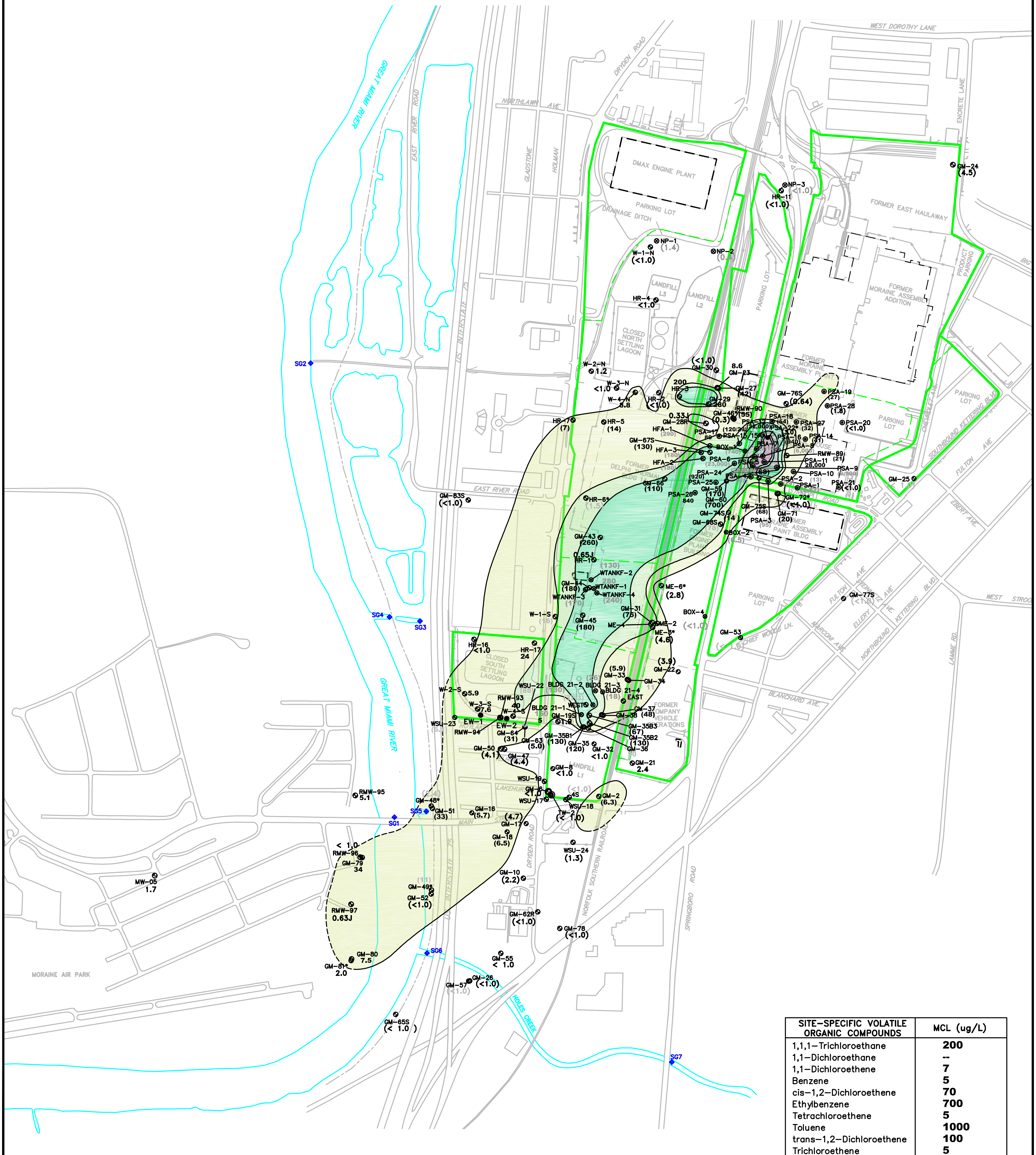
RACER TRUST
MORAINE, OHIO

OH000294.2018

ISOCONCENTRATION MAP (UPPER AQUIFER) TETRACHLOROETHENE - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-1

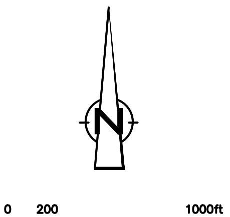


SITE-SPECIFIC VOLATILE ORGANIC COMPOUNDS	MCL (ug/L)
1,1,1–Trichloroethane	**200**
1,1–Dichloroethane	**--**
1,1–Dichloroethene	**7**
Benzene	**5**
cis–1,2–Dichloroethene	**70**
Ethylbenzene	**700**
Tetrachloroethene	**5**
Toluene	**1000**
trans–1,2–Dichloroethene	**100**
Trichloroethene	**5**
Vinyl chloride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

LEGEND

⊗	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW–1, EW–2, AND TW–2)
⊕	STREAM GAUGE
⊗/◉	BORING LOCATION
— · —	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	2017 CONCENTRATIONS
(<1.0)	2016–2013 CONCENTRATIONS
(<1.0)	PRE–2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

▨	>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 2017 MONITORING WELL RESULTS, 2016 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.

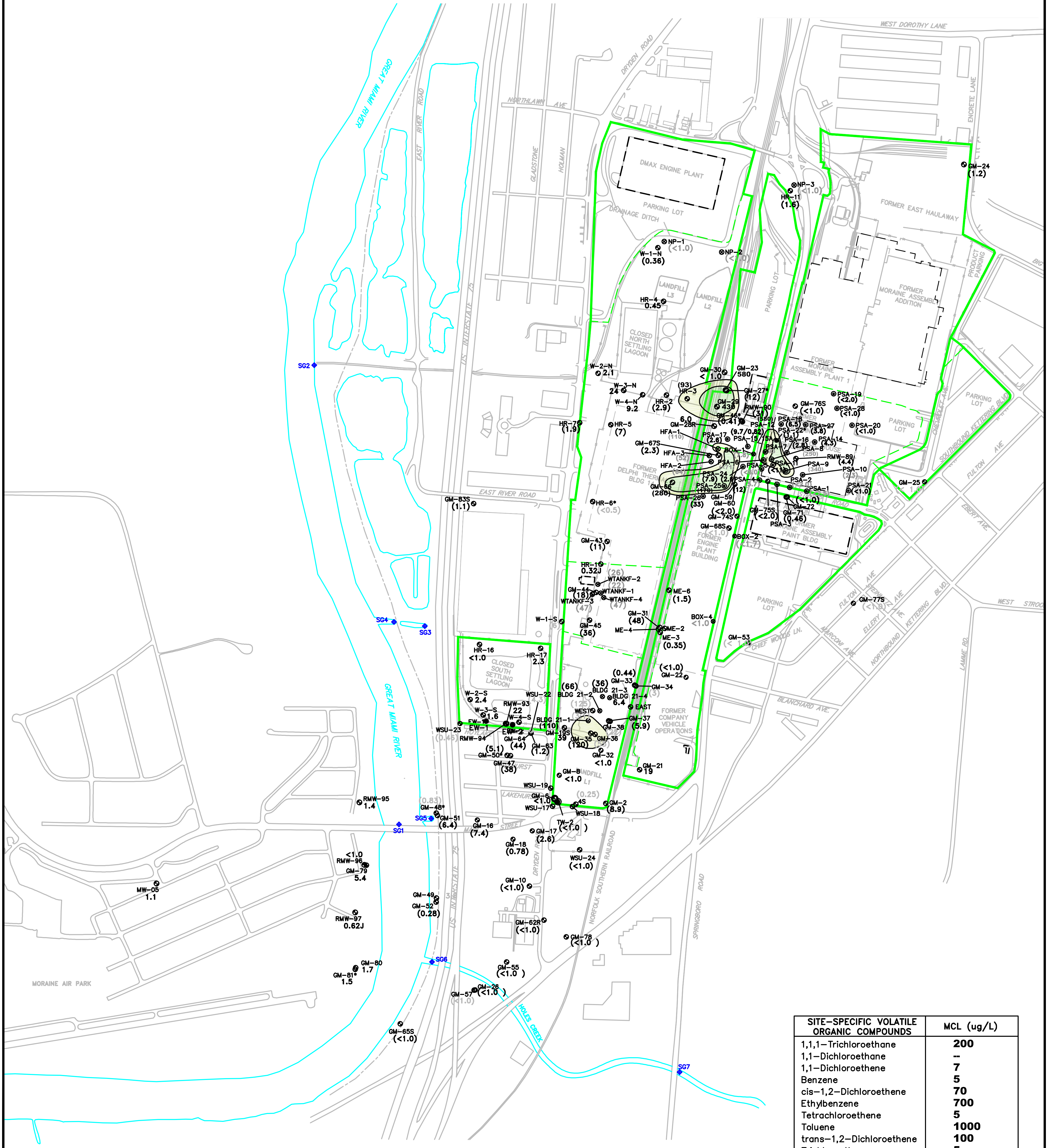
RACER TRUST
MORAINE, OHIO

OH000294.2018

ISOCONCENTRATION MAP (UPPER AQUIFER) TRICHLOROETHENE - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-2



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

LEGEND

⊗	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW–1, EW–2, AND TW–2)
⌖	STREAM GAUGE
⊗/⊙	BORING LOCATION
— · —	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	2017 CONCENTRATIONS
(<1.0)	2016–2013 CONCENTRATIONS
(<1.0)	PRE–2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

🟩	>150 ug/L
🟩	70–150 ug/L

0 200 1000ft

NOTE:

1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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.

RACER TRUST
MORAINE, OHIO

OH000294.2018

ISOCONCENTRATION MAP (UPPER AQUIFER) cis-1,2-DICHLOROETHENE - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-3

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
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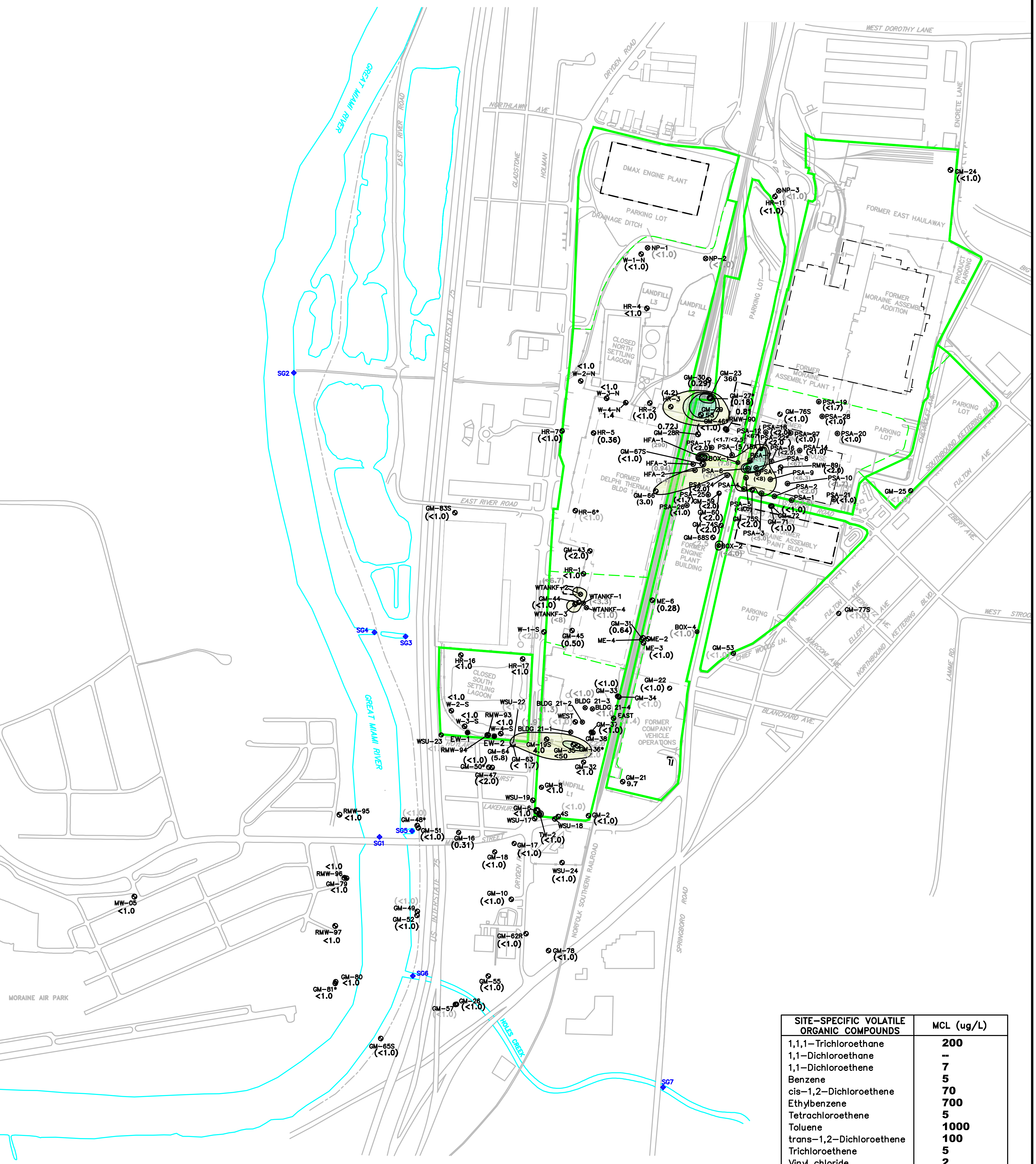


SITE-SPECIFIC VOLATILE ORGANIC COMPOUNDS	MCL (ug/L)
1,1,1–Trichloroethane	**200**
1,1–Dichloroethane	**–**
1,1–Dichloroethene	**7**
Benzene	**5**
cis–1,2–Dichloroethene	**70**
Ethylbenzene	**700**
Tetrachloroethene	**5**
Toluene	**1000**
trans–1,2–Dichloroethene	**100**
Trichloroethene	**5**
Vinyl chloride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

LEGEND

◍	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW–1, EW–2, AND TW–2)
⌖	STREAM GAUGE
⊗/◉	BORING LOCATION
— · —	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	2017 CONCENTRATIONS
(<1.0)	2016–2013 CONCENTRATIONS
(<1.0)	PRE–2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

▨	>50 ug/L
🟩	20–50 ug/L
🟩	10–20 ug/L
▢	2–10 ug/L

N

0 200 1000ft

NOTE:
1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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.

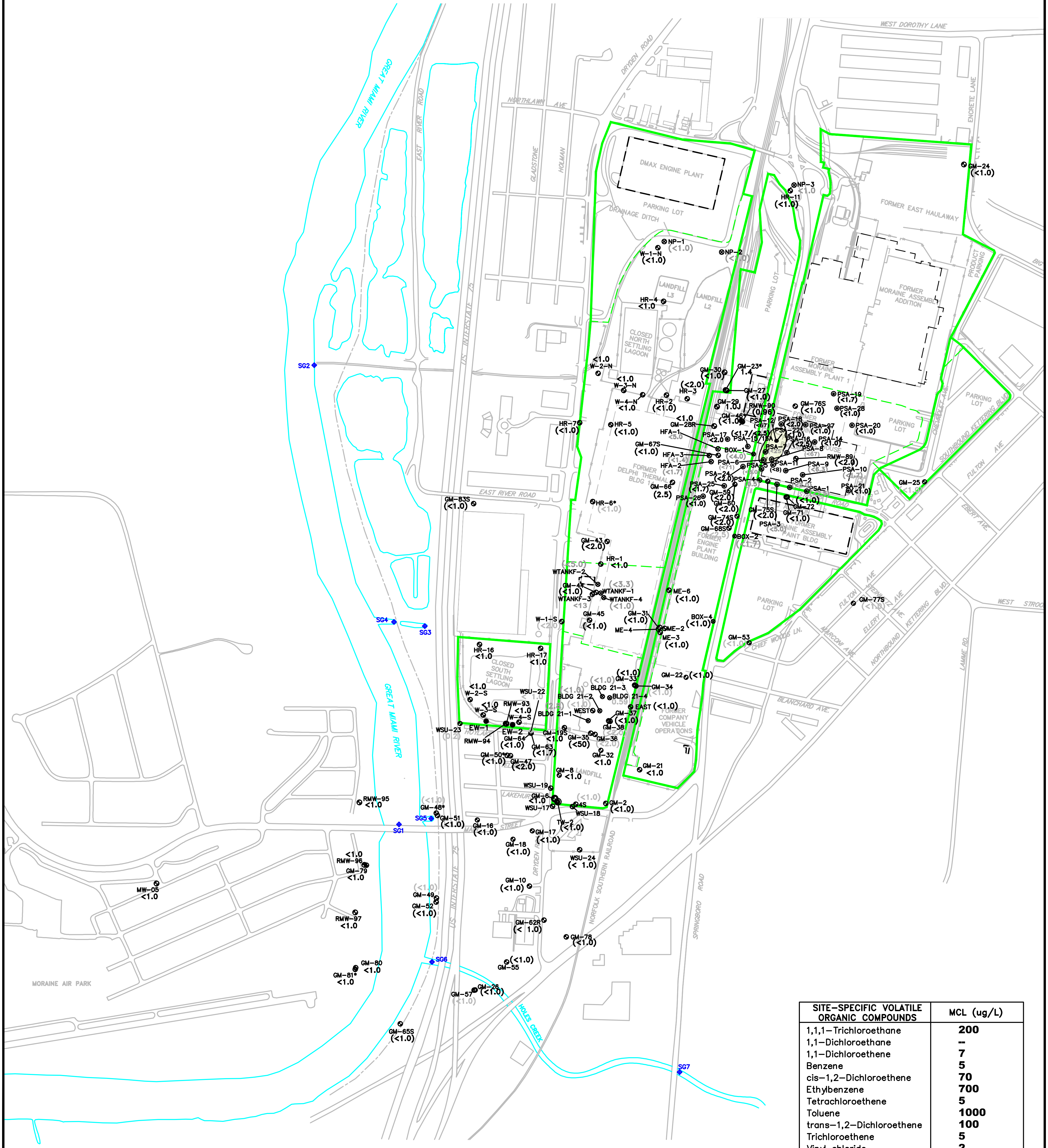
RACER TRUST
MORAINE, OHIO

OH000294.2018

ISOCONCENTRATION MAP (UPPER AQUIFER) VINYL CHLORIDE - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-4



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**

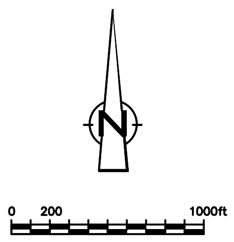
LEGEND

●	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE EXTRACTION WELL (EW-1, EW-2, AND TW-2)
⌖	STREAM GAUGE
⊗/◉	BORING LOCATION
— - —	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	2017 CONCENTRATIONS
(<1.0)	2016-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

🟩	>50 ug/L
🟨	7-50 ug/L

NOTE:

1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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.



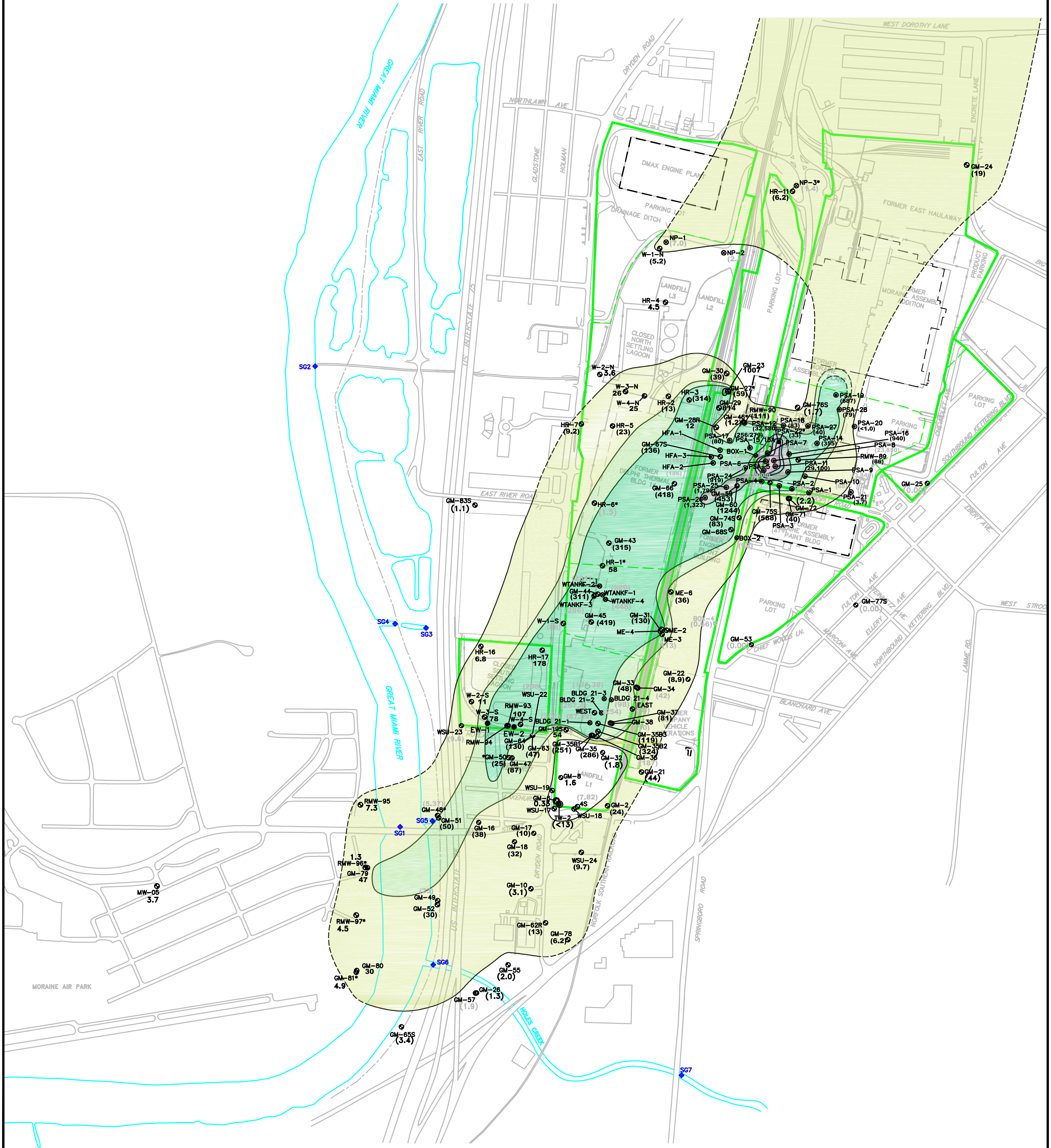
RACER TRUST
MORAINE, OHIO

OH000294.2018

ISOCONCENTRATION MAP (UPPER AQUIFER) 1,1-DICHLOROETHENE - 2017

ARCADIS Design & Consultancy for natural and built assets

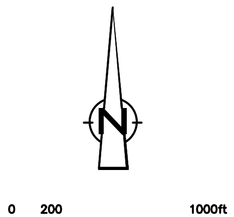
FIGURE
F-5



LEGEND

⊛	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE RECOVERY WELL (TW-2)
⊕	STREAM GAUGE
⊗/◉	BORING LOCATION
— · —	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	2017 CONCENTRATIONS
(<1.0)	2016–2013 CONCENTRATIONS
(<1.0)	PRE–2013 CONCENTRATIONS
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

▨	>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 2017 MONITORING WELL RESULTS, 2016 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.

RACER TRUST
MORAINE, OHIO

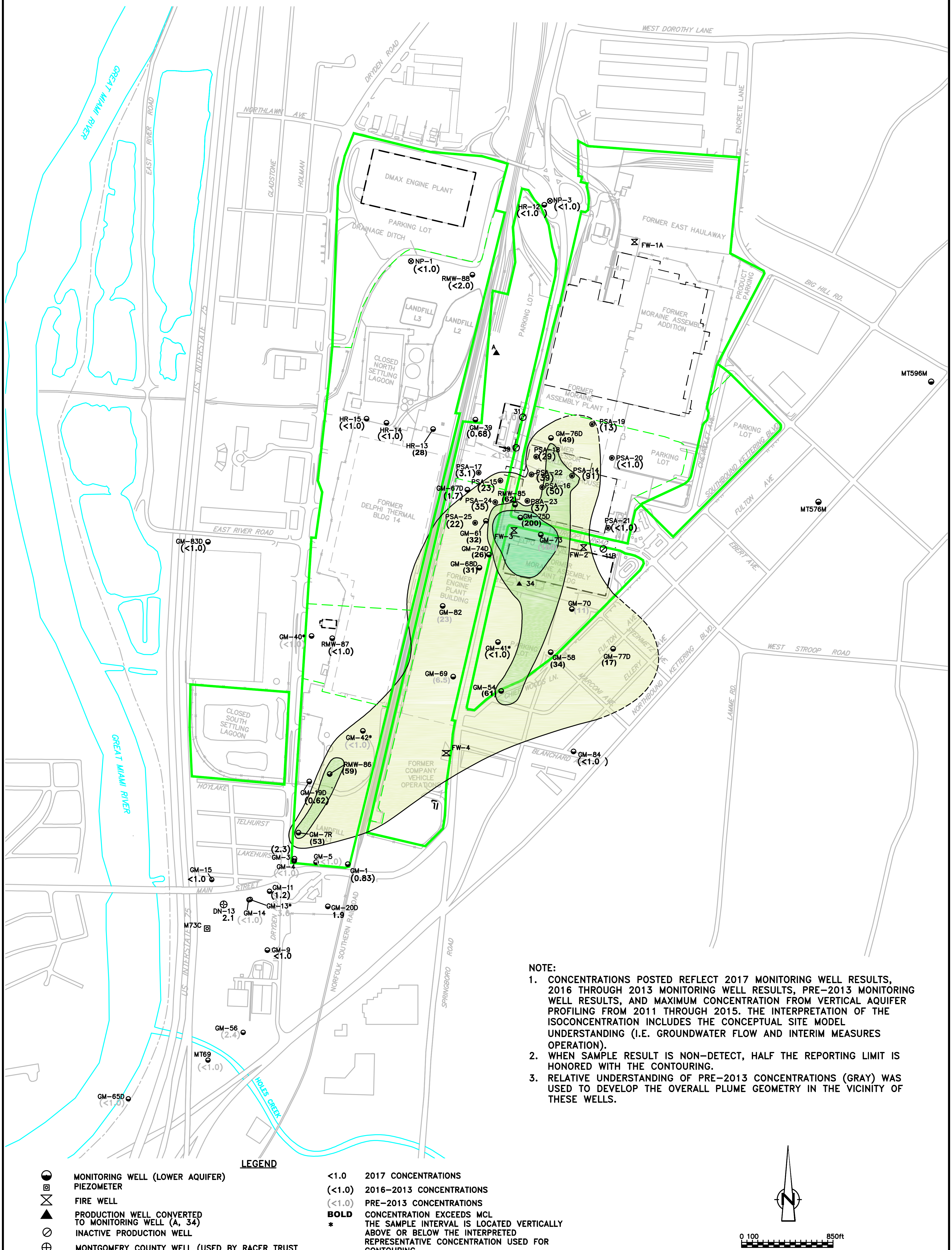
OH000294.2018

ISOCONCENTRATION MAP (UPPER AQUIFER) TOTAL CHLORINATED VOCs - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-6

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\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-PLUMES-LOWER.dwg LAYOUT: PCE 2017 SAVED: 2/16/2018 8:28 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/22/2018 2:03 PM BY: SMITH, BOB



NOTE:
1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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
— · —	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
MCL	MAXIMUM CONTAMINANT LEVEL
🟩	>100 ug/L
🟩	50-100 ug/L
🟨	5-50 ug/L

<1.0	2017 CONCENTRATIONS
(<1.0)	2016-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

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**

RACER TRUST
MORAINE, OHIO

OH000294.2018

ISOCONCENTRATION MAP (LOWER AQUIFER) TETRACHLOROETHENE - 2017

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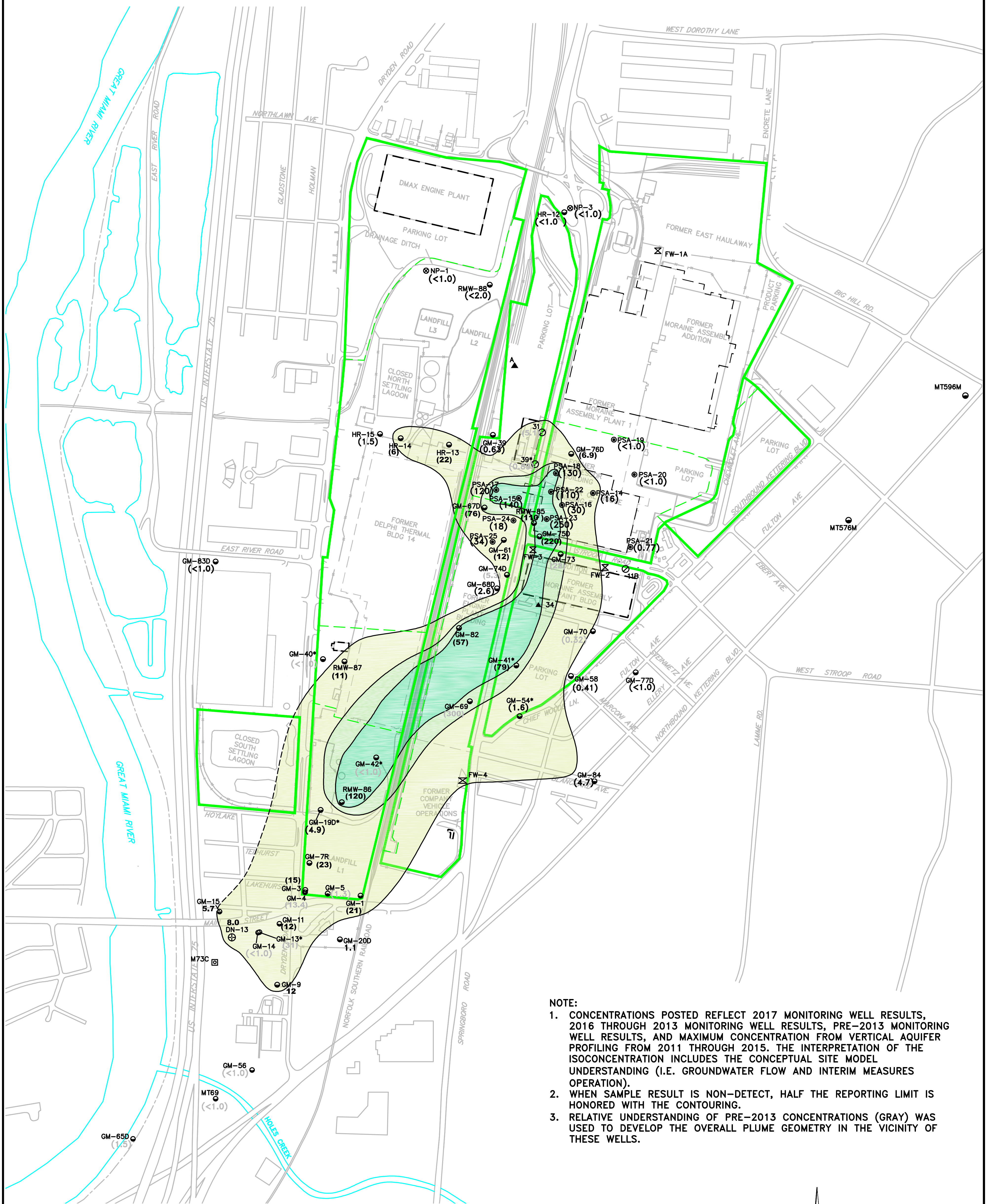
FIGURE
F-7

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\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-PLUMES-LOWER.dwg LAYOUT: TCE 2017 SAVED: 2/16/2018 8:28 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/22/2018 2:04 PM BY: SMITH, BOB



NOTE:

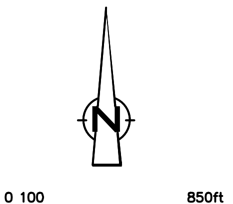
1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 THROUGH 2013 MONITORING WELL RESULTS, PRE-2013 MONITORING WELL RESULTS, AND MAXIMUM CONCENTRATION FROM VERTICAL AQUIFER PROFILING FROM 2011 THROUGH 2015. THE INTERPRETATION OF THE ISOCONCENTRATION INCLUDES THE CONCEPTUAL SITE MODEL UNDERSTANDING (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
— - —	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
MCL	MAXIMUM CONTAMINANT LEVEL
🟩	>100 ug/L
🟩	50-100 ug/L
🟨	5-50 ug/L

<1.0	2017 CONCENTRATIONS
(<1.0)	2016-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

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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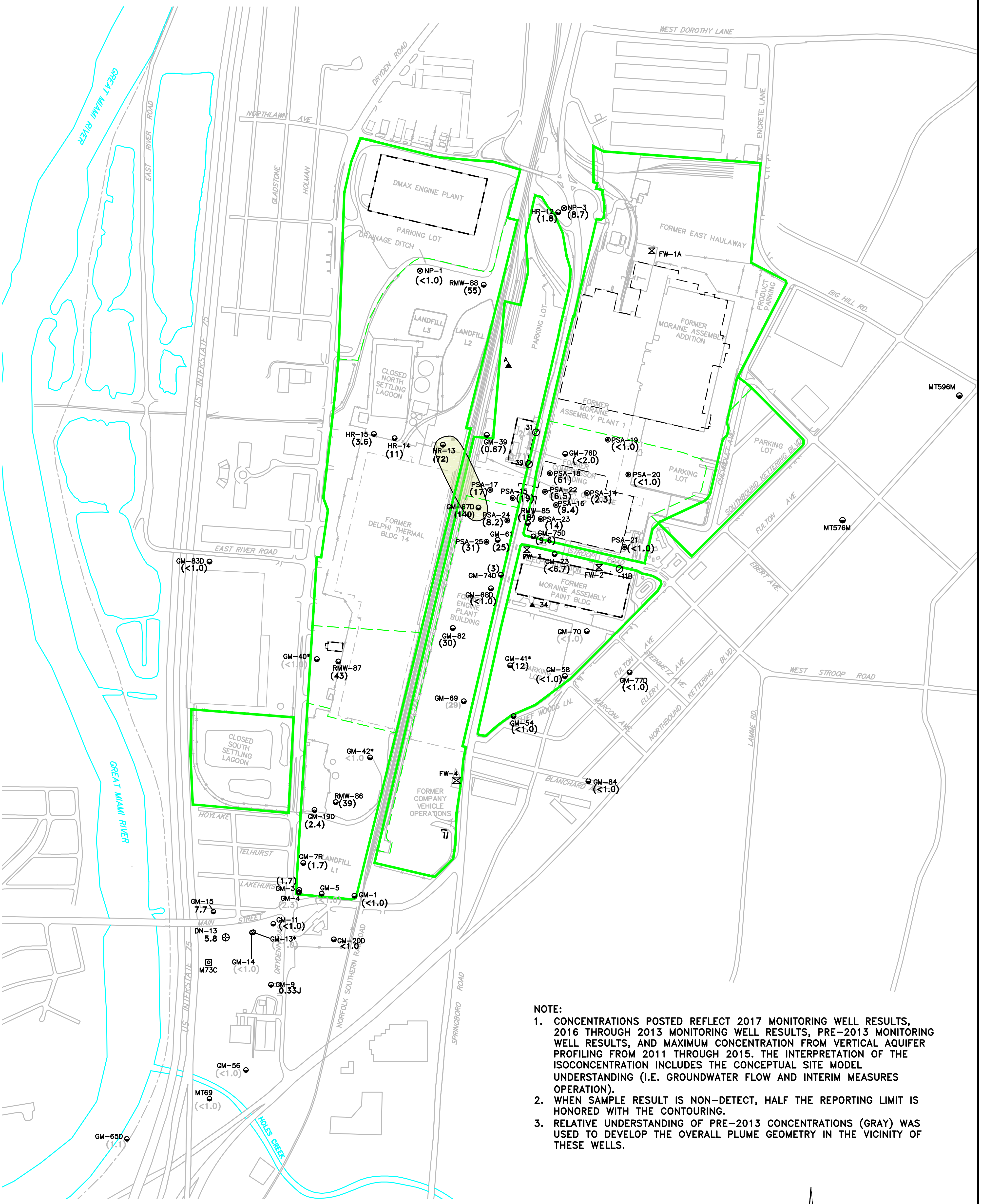
ISOCONCENTRATION MAP (LOWER AQUIFER) TRICHLOROETHENE - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-8



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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
— - —	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
MCL	MAXIMUM CONTAMINANT LEVEL
🟩	70-150 ug/L

<1.0	2017 CONCENTRATIONS
(<1.0)	2016-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

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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ISOCONCENTRATION MAP (LOWER AQUIFER) cis-1,2-DICHLOROETHENE -2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-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\OneDrive - ARCADIS\BIM 360 Docs\RACER TRUST\RACER\MORAINE OH 2017 ACTIVITI\2018\OH000294.2018\01-DWG\0004B\ANN294-04B-2018-PLUMES-LOWER.dwg LAYOUT: VINYL CHLORIDE SAVED: 2/16/2018 8:28 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ----
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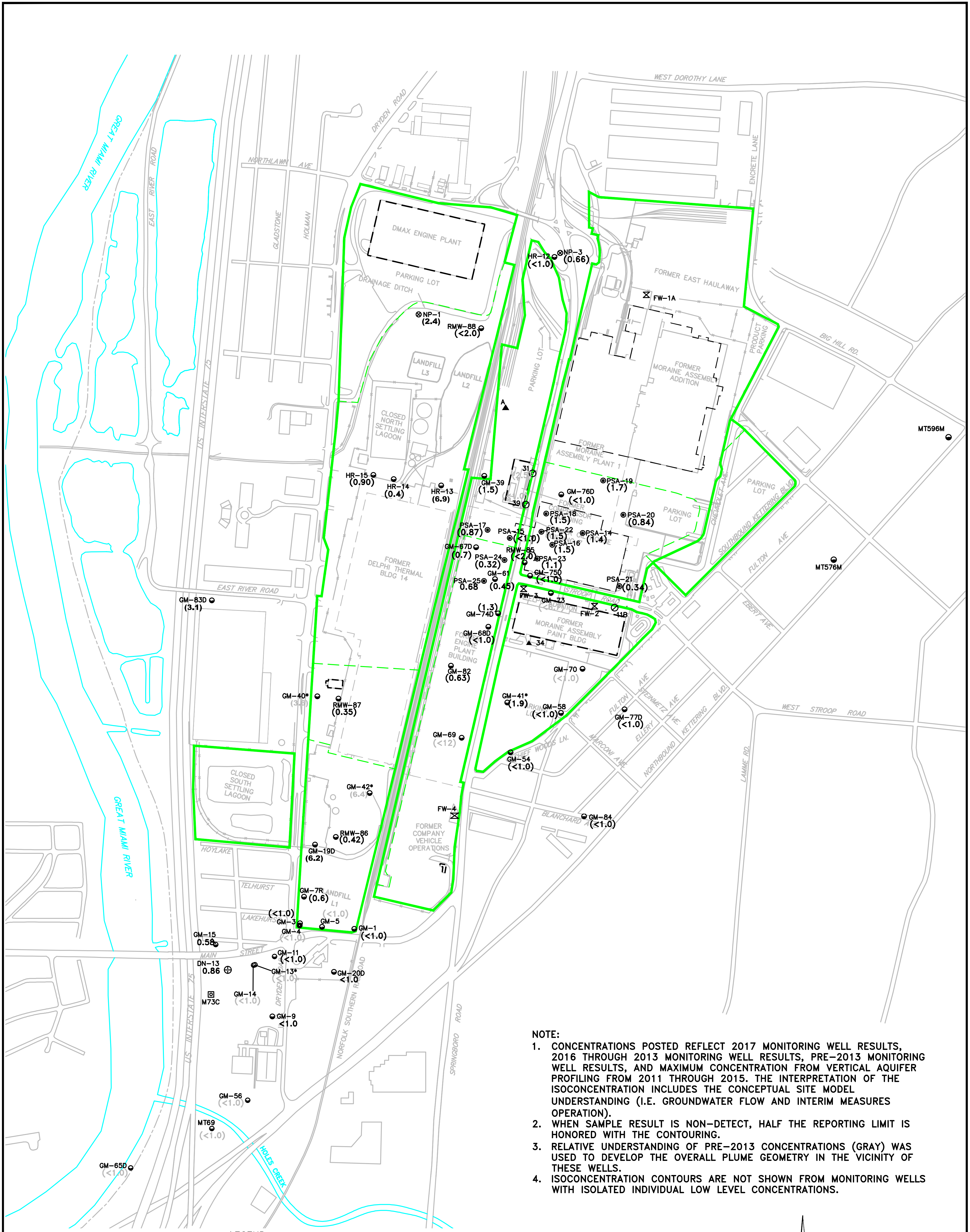

NOTE:

1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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. ISOCONCENTRATION CONTOURS ARE NOT SHOWN FROM MONITORING WELLS WITH ISOLATED INDIVIDUAL LOW LEVEL CONCENTRATIONS.

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
— - —	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
MCL	MAXIMUM CONTAMINANT LEVEL

<1.0	2017 CONCENTRATIONS
(<1.0)	2016–2013 CONCENTRATIONS
(<1.0)	PRE–2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

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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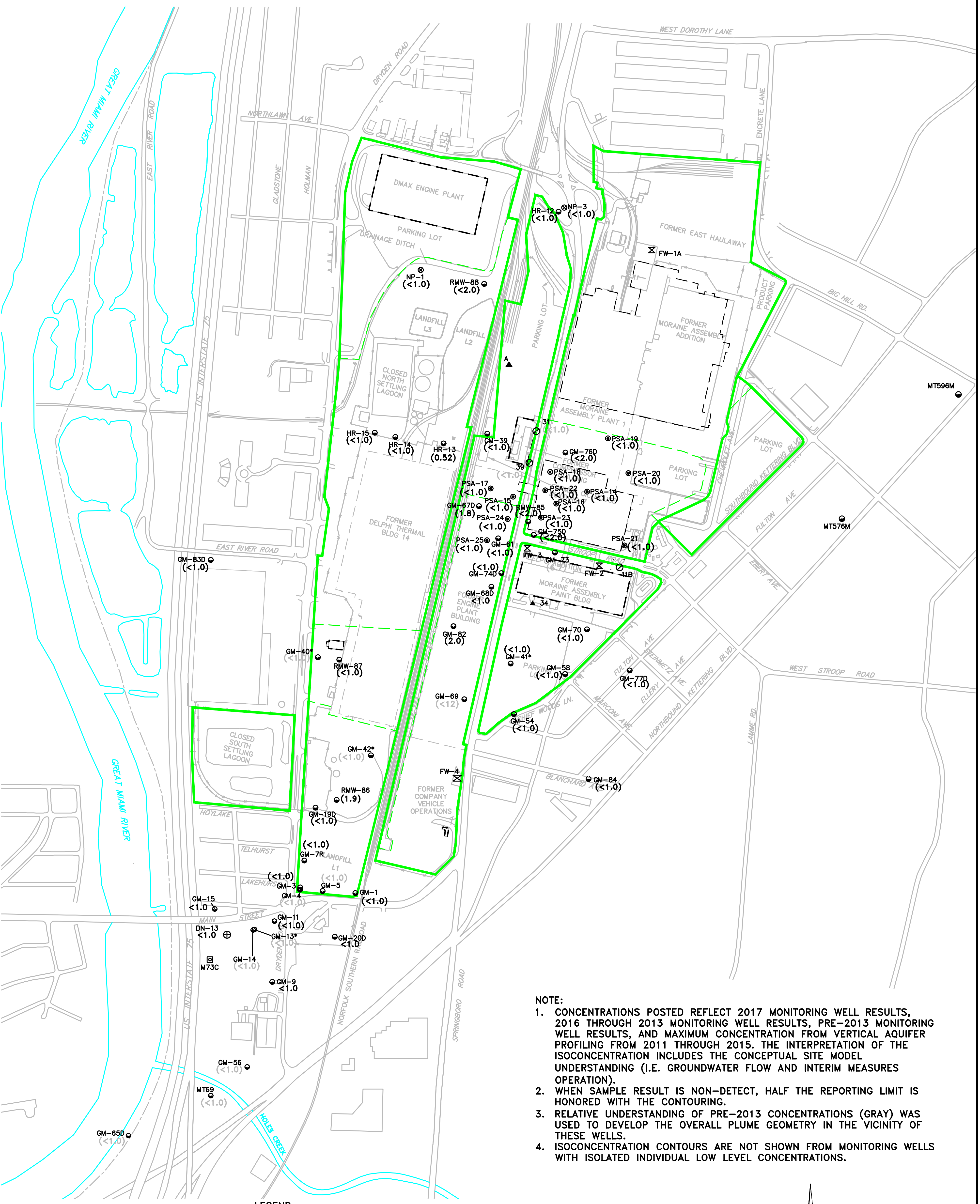
MORAINE, OHIO

OH000294.2018

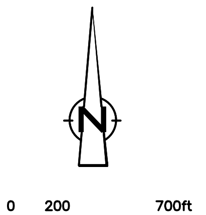
ISOCONCENTRATION MAP (LOWER AQUIFER) VINYL CHLORIDE - 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
F-10



NOTE:
1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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. ISOCONCENTRATION CONTOURS ARE NOT SHOWN FROM MONITORING WELLS WITH ISOLATED INDIVIDUAL LOW LEVEL CONCENTRATIONS.



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
— - —	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
MCL	MAXIMUM CONTAMINANT LEVEL

<1.0	2017 CONCENTRATIONS
(<1.0)	2016-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
BOLD	CONCENTRATION EXCEEDS MCL
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

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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ISOCONCENTRATION MAP (LOWER AQUIFER) 1,1-DICHLOROETHENE - 2017

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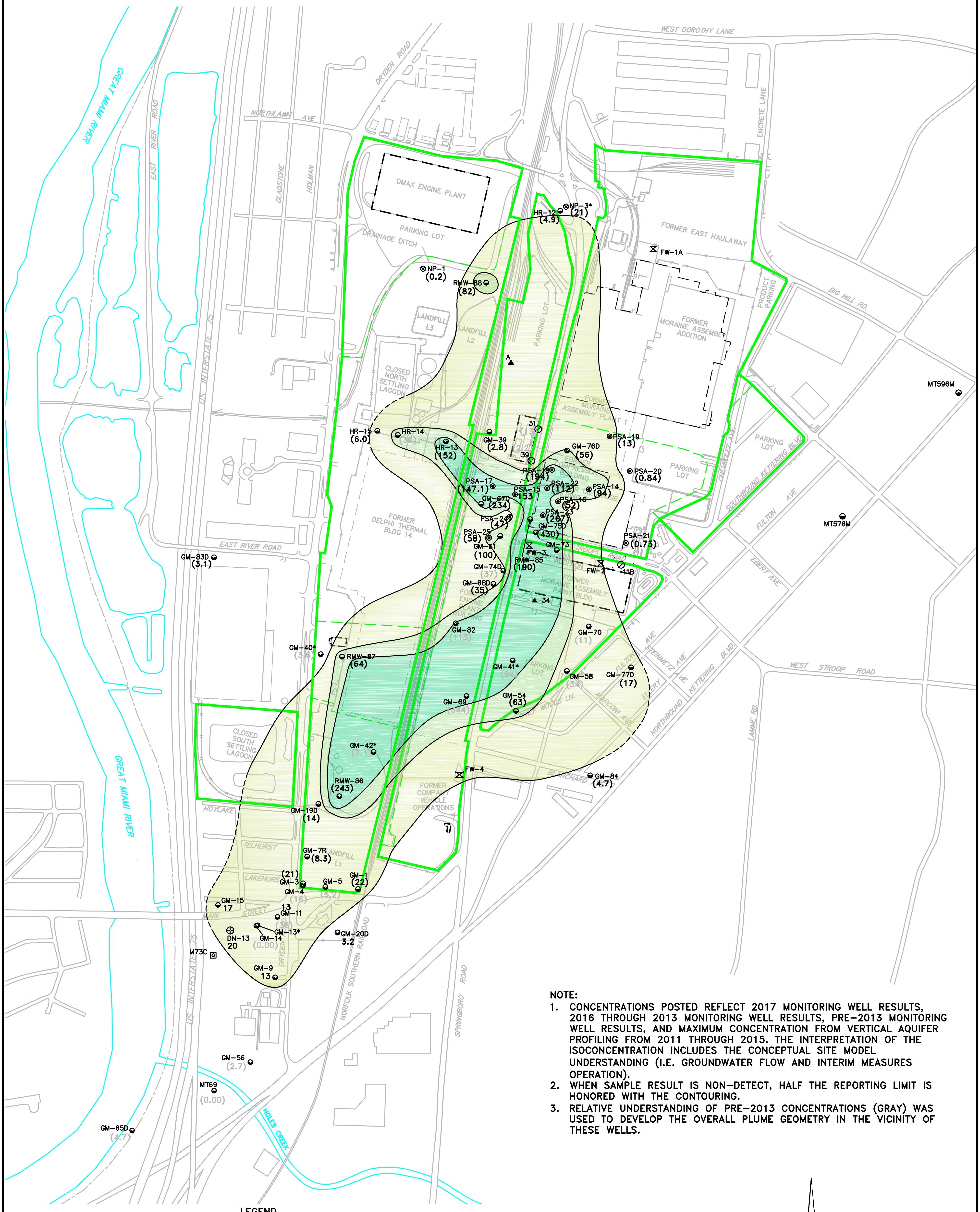
FIGURE
F-11



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2017 MONITORING WELL RESULTS, 2016 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).
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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
— · —	RIVER LEVEE
— —	FORMER BUILDING FOOTPRINT
—	SURFACE WATER FEATURE
—	PROPERTY BOUNDARY
- - -	PARCEL BOUNDARY
ug/L	MICROGRAMS PER LITER
VOCs	VOLATILE ORGANIC COMPOUNDS
🟩	>100 ug/L
🟩	50-100 ug/L
🟨	5-50 ug/L

<1.0	2017 CONCENTRATIONS
(<1.0)	2016-2013 CONCENTRATIONS
(<1.0)	PRE-2013 CONCENTRATIONS
*	THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

N

0 100 850ft

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ISOCONCENTRATION MAP (LOWER AQUIFER) TOTAL CHLORINATED VOCs - 2017

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FIGURE
F-12

APPENDIX G

DN-13 Pumping Well Operation and Maintenance for 2017

Appendix G

DN-13 Pumping Well Operation
and Maintenance for 2017

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 RACER Trust. Well DN-13 was part of the former Greater Moraine Water System located in the former North Dryden Road well field. The well has been used in a Pump-to-Waste Program since March 1990 in cooperation with former GM Corporation/MLC 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 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 well head and outfall to monitor water quality along with the discharge flow rate. Additional information regarding DN-13 capture is in Section 3.2 of the main 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 wells M73C (down-gradient), GM-14 (up-gradient), GM-15 (cross-gradient), GM-9 (cross-gradient), and GM-19D (up-gradient, manual readings only).

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 is analyzed and summarized in quarterly progress reports submitted to the U.S. EPA and the 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

DN-13 Pumping Well Operation
and Maintenance for 2017

As part of this annual performance summary, DN-13 groundwater elevation data are shown graphically on Figure G-1, and specific capacity (SC) and average monthly flow rate data are shown on Figure G-2. Annual average flow rate data for the year is summarized in Section 3.2.1 of the main report.

As part of the quarterly evaluations in 2017, corrective actions were prompted and are summarized below:

First Quarter

Well DN-13 was not operational for less than 1% of the first quarter. This downtime was associated with a manual shutdown on January 6, 2017 to replace a sample port. Following this shutdown, the pump continued to remain operational for the remainder of the quarter.

Second Quarter

Well DN-13 was re-developed during the second quarter of 2017 due to decreased performance. From May 15 through 25, 2017, re-development was performed by The Layne Christenson Company (Layne) to remove biofouling and mineral scaling on the screen and within the surrounding formation by bore blasting and application of a glycolic acid NW 310 solution. In addition, the pump was removed and inspected, and video logging of the well to assess screen conditions was completed prior to and after re-development. Following rehabilitation, it was determined that biofouling and scaling were the main contributors to the decline in performance.

On May 26, 2017, a step test was completed by Arcadis to determine post re-development baseline parameters. The step testing details are provided in hydrograph form shown on Figure G-3. Testing results demonstrated improvements in well performance by increasing specific capacity, allowing for higher flow rate operation with reduced drawdown. The maximum pumping rate after redevelopment was measured at 1,100 gallons per minute (gpm). The flow rate was reduced to 882 gpm to maintain a conservative drawdown. Post re-development specific capacity was at 25.9 gallons per minute per foot (gpm/ft), which is above the recommended threshold of greater than 15 gpm/ft. The re-development activities successfully improved DN-13 well performance and no additional modifications were recommended.

Well DN-13 was operational for 80% of the quarter. The downtime was associated with power outages (8%) and well re-development (12%).

Third Quarter

No questionable items were identified during the third quarterly evaluation. Well DN-13 was operational for 100% of the quarter.

Fourth Quarter

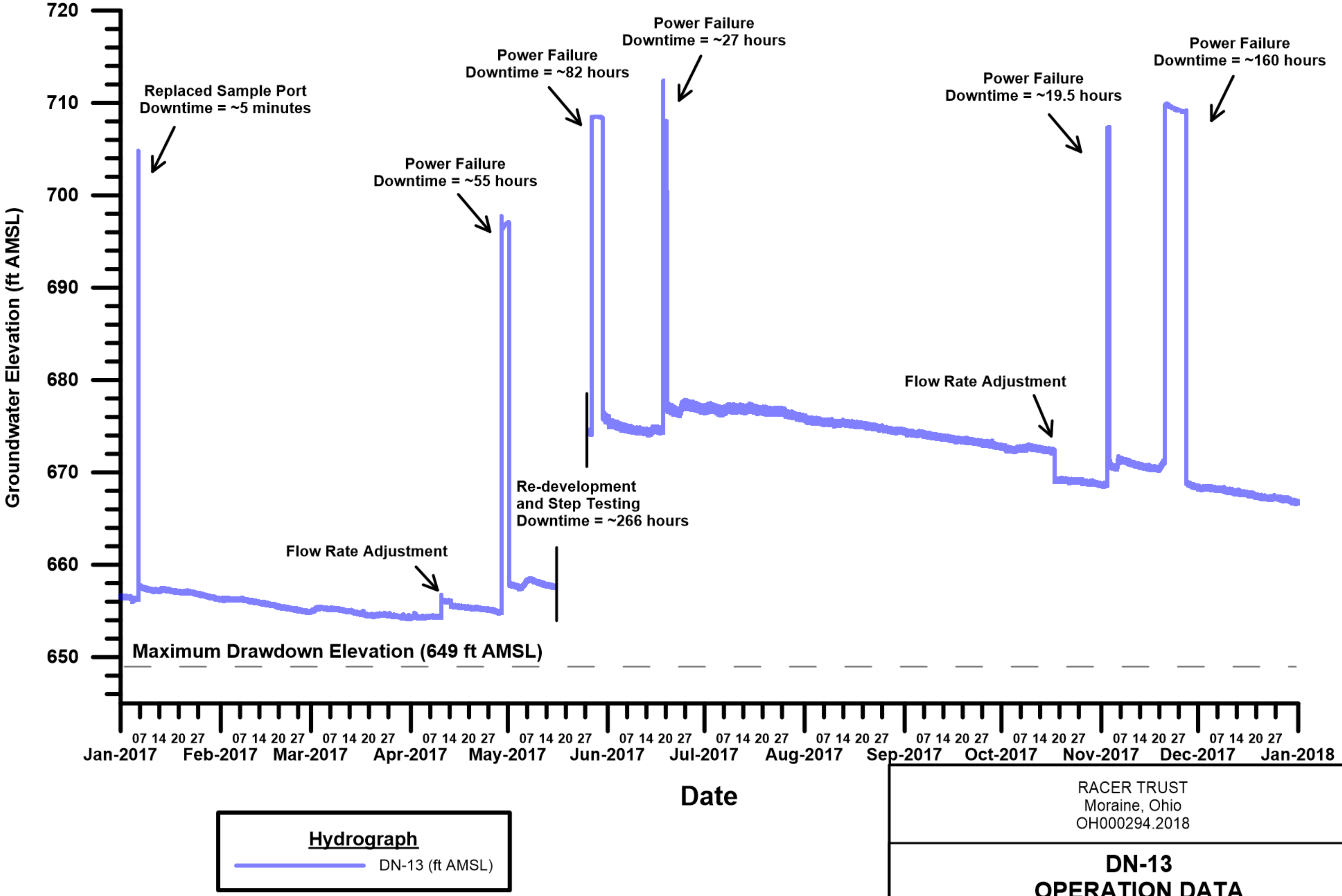
No questionable items were identified during the quarterly evaluation of well DN-13 performance. Well DN-13 was operational for 92% of the quarter. Downtime was associated with power failures that occurred on November 2, 2017 and November 20, 2017.

No additional data is recommended to be collected beyond the original O&M program in 2018.

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

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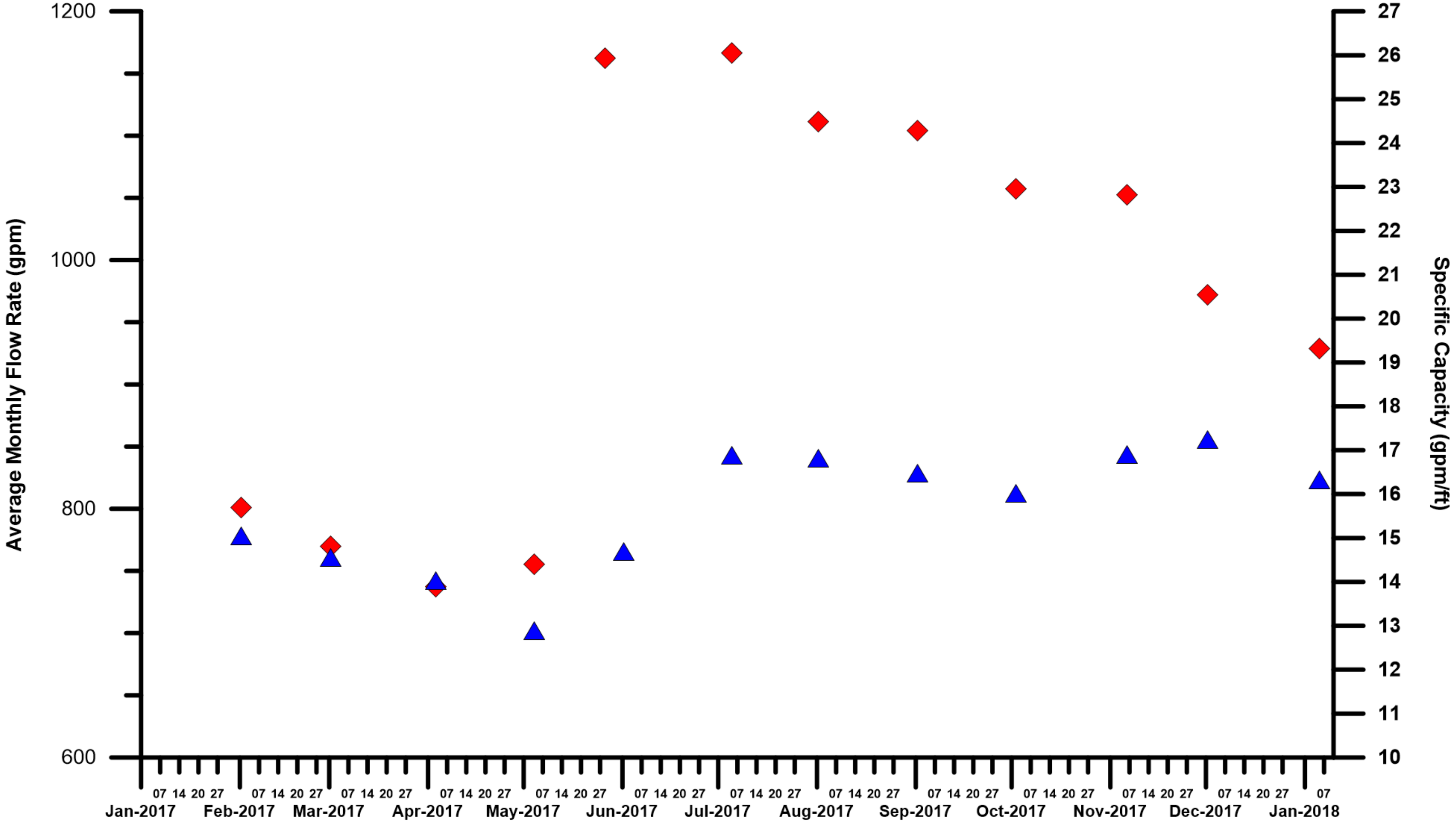
DN-13
OPERATION DATA
WATER-LEVEL ELEVATION

ARCADIS

FIGURE
G-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

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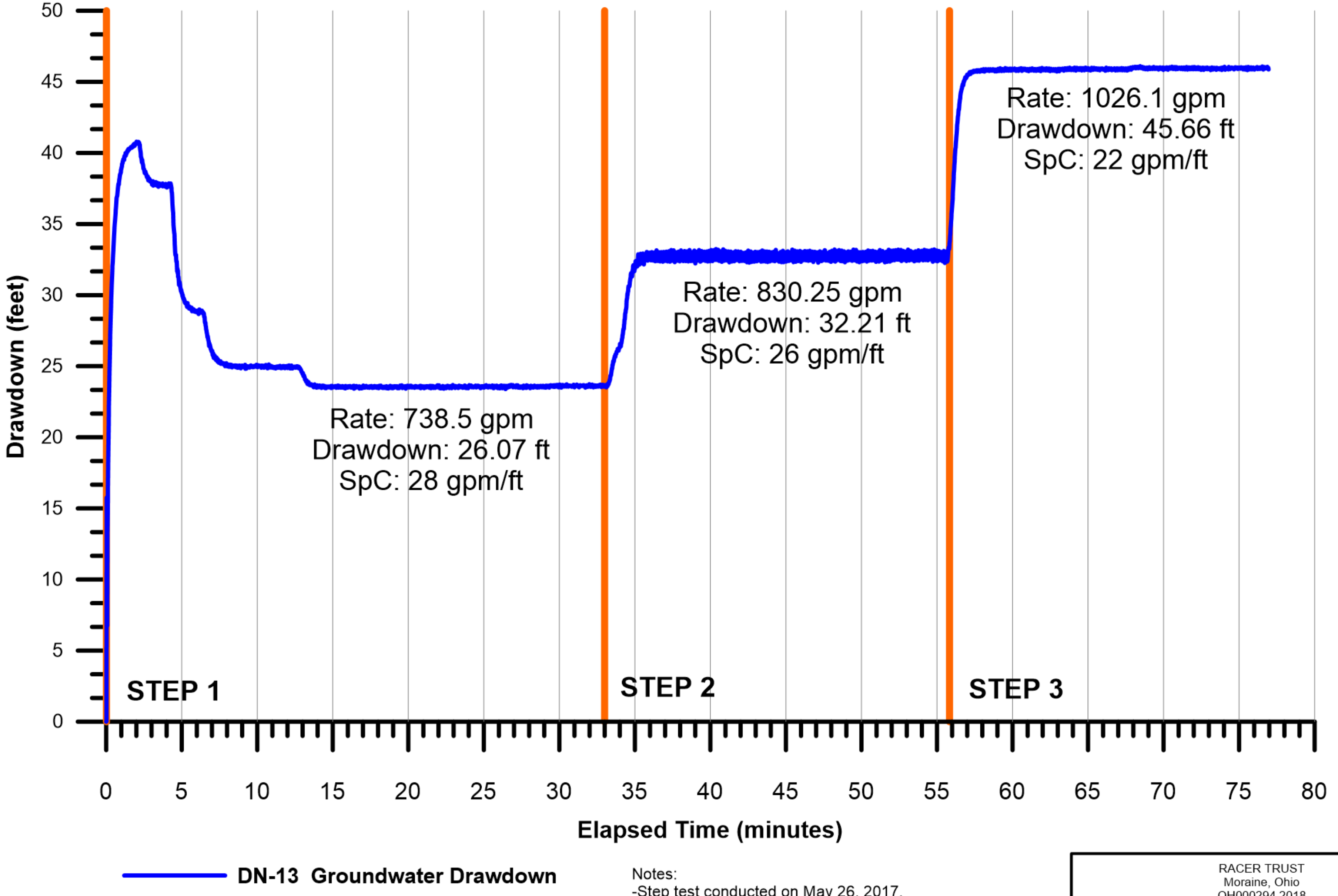
OH000294.2018

DN-13 OPERATION DATA FLOW RATE AND SPECIFIC CAPACITY

ARCADIS

FIGURE
G-2



Notes:
-Step test conducted on May 26, 2017.
-Estimated maximum pumping rate: 1100 gpm.
-Rate is the average pumping rate over the time of each step.

gpm - gallons per minute
ft - feet
SpC - specific capacity

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DN-13 Step Test

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FIGURE
G-3

APPENDIX H

Capture Zone Trends

Table H-1
Volatile Organic Constituent Sums Used in the Statistical
RACER Trust Moraine Facilities
Moraine, Ohio

GM-9		GM-15		GM-20D	
Date	ug/L	Date	ug/L	Date	ug/L
9/24/1999	15.80	9/24/1999	10.80	9/24/1999	0
10/3/2000	18.40	10/2/2000	9.60	10/3/2000	20.10
11/14/2001	11.14	11/14/2001	7.50	11/14/2001	8.54
9/30/2002	18.13	9/27/2002	8.10	9/30/2002	5.10
9/24/2003	22.31	9/22/2003	9.20	9/22/2003	16.49
9/21/2004	18.67	9/20/2004	9.00	9/21/2004	14.86
10/26/2005	17.43	10/26/2005	9.30	10/26/2005	14.43
9/25/2006	8.37	9/18/2006	9.10	9/26/2006	13.61
9/19/2007	20.39	9/25/2007	7.70	9/19/2007	11.80
9/24/2008	19.20	9/30/2008	8.09	9/25/2008	9.65
NS	NS	11/13/2009	8.70	11/13/2009	10.00
9/22/2010	18.81	9/23/2010	8.70	9/22/2010	9.02
9/28/2011	14.50	9/29/2011	6.90	9/28/2011	7.20
9/26/2012	17.34	9/5/2012	10.14	9/5/2012	3.70
9/25/2013	20.84	9/25/2013	7.79	9/25/2013	6.92
10/6/2014	19.13	10/7/2014	8.80	10/6/2014	5.12
12/11/2015	13.18	11/4/2015	17.34	11/3/2015	4.10
8/17/2016	14.00	8/18/2016	18.04	8/19/2016	2.80
8/15/2017	12.84	8/16/2017	16.85	8/15/2017	3.23

ABBREVIATIONS:

ug/L = micrograms per liter

NS: Not sampled

NOTES:

1. All detected concentrations of individual VOC constituents were included in the sum.

2. Field duplicate results were not included.

Table H-2
Summary of Statistics and Trend Results
RACER Trust Moraine Facilities
Moraine, Ohio

Well ID	Analyte	Date Range	Figure	n	Detected Results Summary (ug/L)				Mann-Kendall Test			Sen's Estimator of Slope	
					Range	Mean	SD	CV	Result	P-Value	S Value	Result	Slope (Units/Day)
Full Data Set													
GM-09	Total VOCs	09/99 - 08/17	H-1	18	8.4 - 22.3	16.7	3.7	0.22	NST	0.298	-15	NST	-0.000371
GM-15	Total VOCs	09/99 - 08/17	H-2	19	6.9 - 18	10.1	3.4	0.34	NST	0.253	20	NST	0.000206
GM-20D	Total VOCs	09/99 - 08/17	H-3	19	0 - 20.1	8.8	5.4	0.61	DWN	0.001	-87	DWN	-0.00260
After July 2008													
GM-09	Total VOCs	09/08 - 08/17	H-4	9	12.8 - 20.8	16.6	3	0.18	DWN	0.038	-18	NST	-0.00198
GM-15	Total VOCs	09/08 - 08/17	H-5	10	6.9 - 18	11.1	4.4	0.40	UP	0.019	24	UP	0.00268
GM-20D	Total VOCs	09/08 - 08/17	H-6	10	2.8 - 10	6.2	2.7	0.44	DWN	<0.001	-35	DWN	-0.00237

ABBREVIATIONS:

CV = coefficient of variation
mean = arithmetic mean
n = sample size
SD = standard deviation

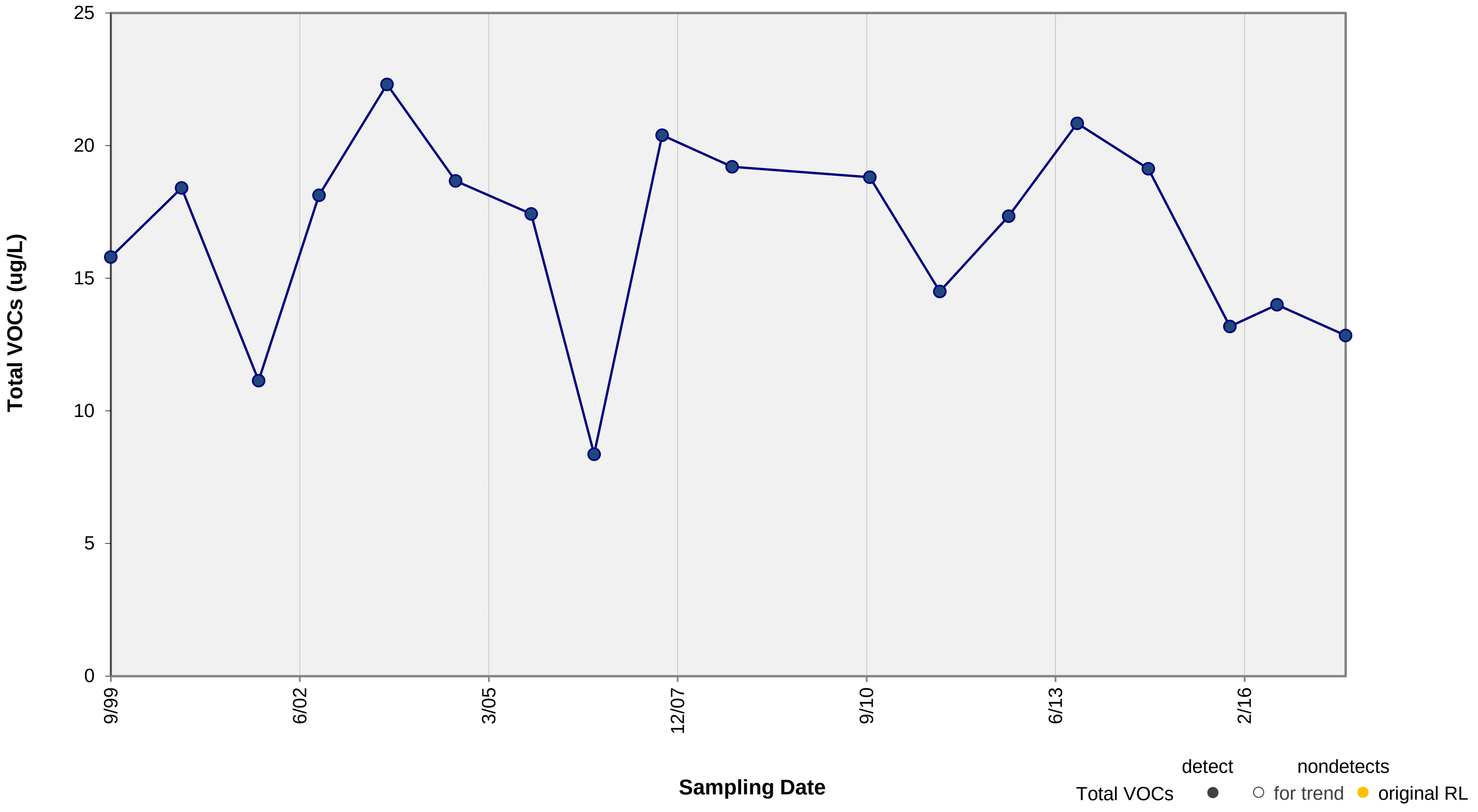
NST = no significant trend
DWN = downward trend
UP = upward trend

NOTES:

1. All analytical results are in ug/L. Result values less than 10 are reported to 2 significant figures; values greater than 10 are reported to 3 significant figures. P-values are reported to 3 decimal places.
2. Total VOCs represent the sum of all detected concentrations of individual VOC constituents.
3. Field duplicate results were not included.
4. Statistical testing of the null hypothesis: no significant trend (slope = 0) and the alternative hypothesis: significant trend (slope ≠ 0) with 95% confidence.

REFERENCE:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.298 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -3.7E-04 ug/L Per Day

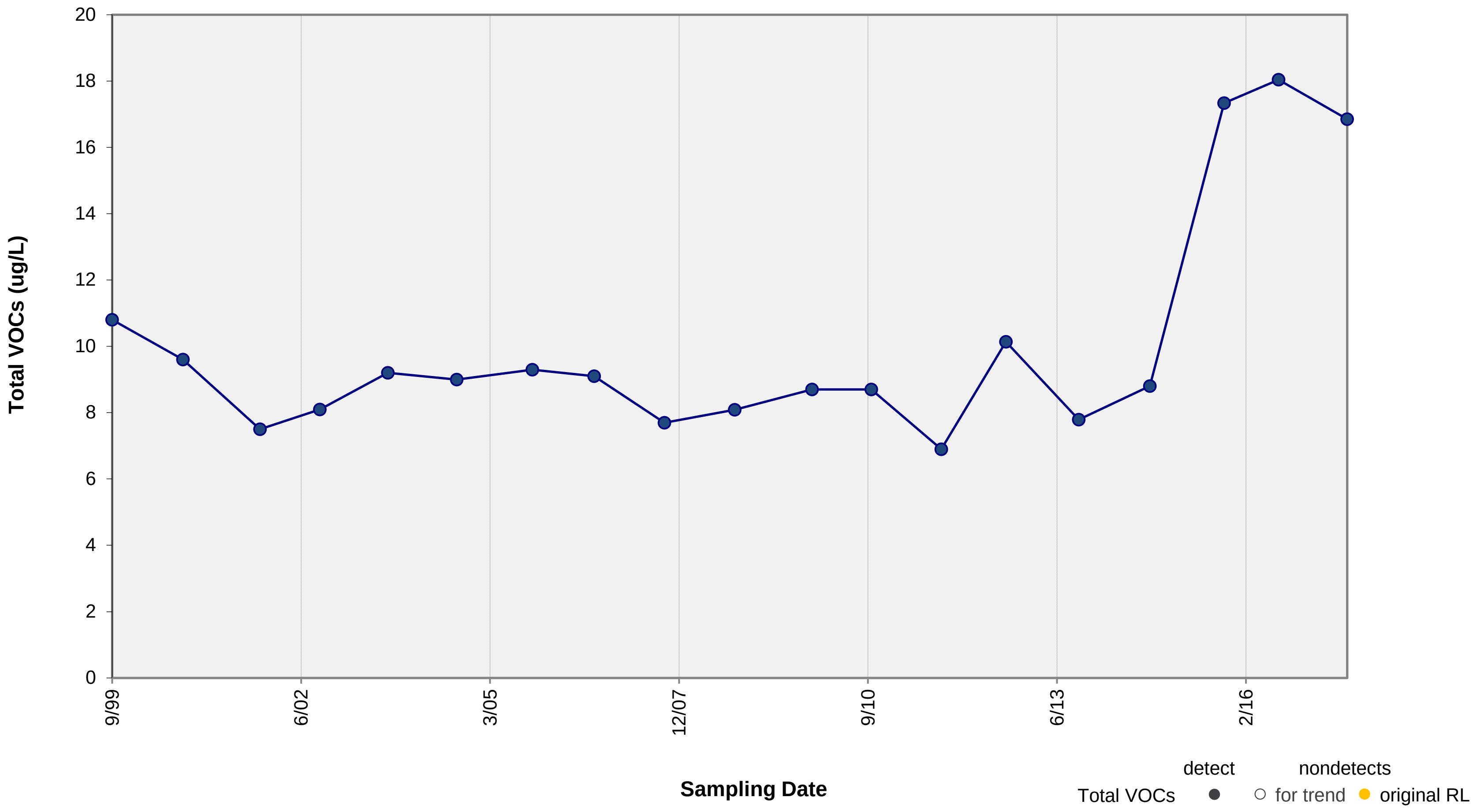
95% Confidence Interval = -1.3E-03 to 5.6E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-09

RACER Trust, Moraine, Ohio

Figure H-1



Results of Mann-Kendall Test for Trend: **No Significant Trend**

p value = 0.253 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = 2.1E-04 ug/L Per Day

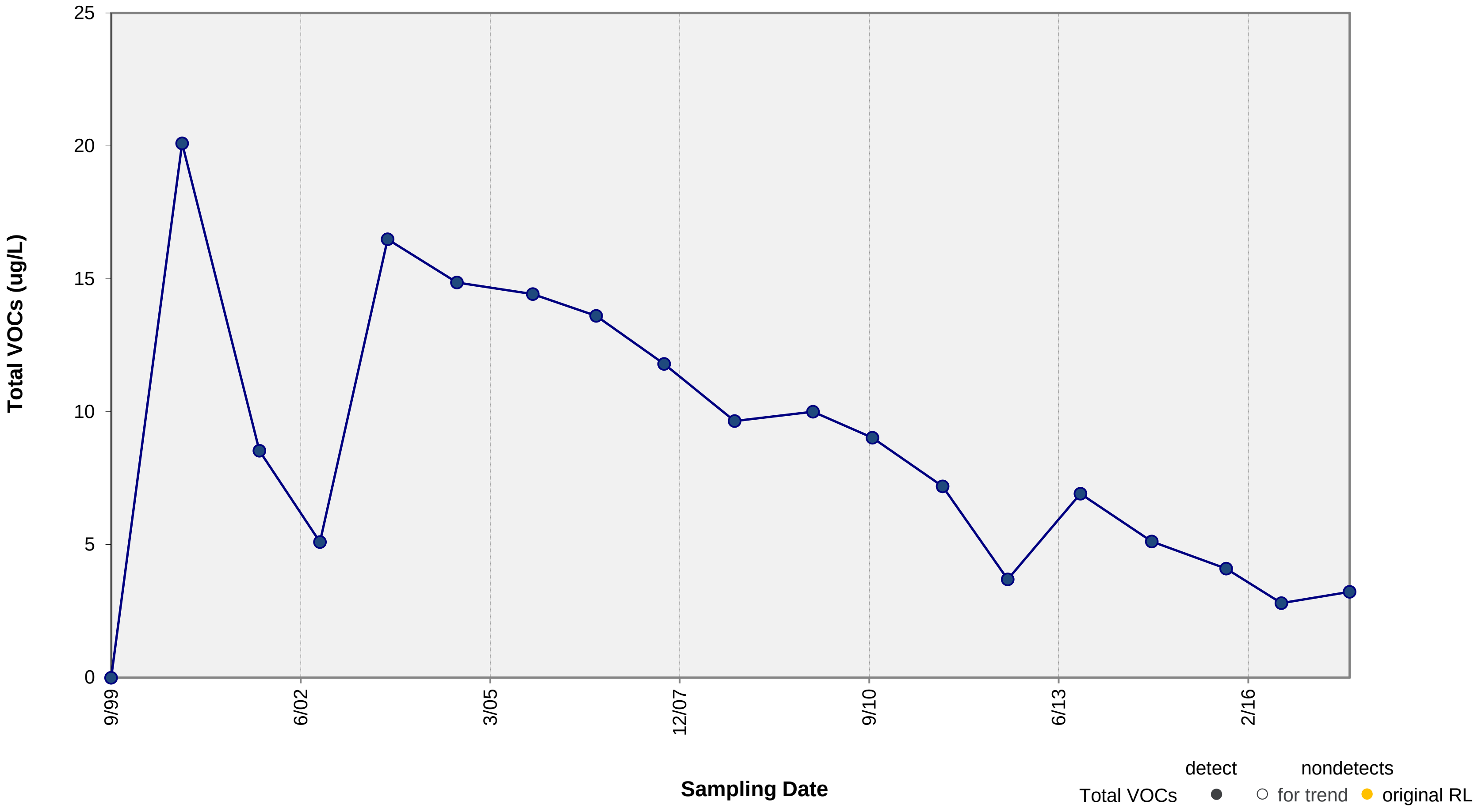
95% Confidence Interval = -2.4E-04 to 1.3E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-15

RACER Trust, Moraine, Ohio

Figure H-2



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.6E-03 ug/L Per Day

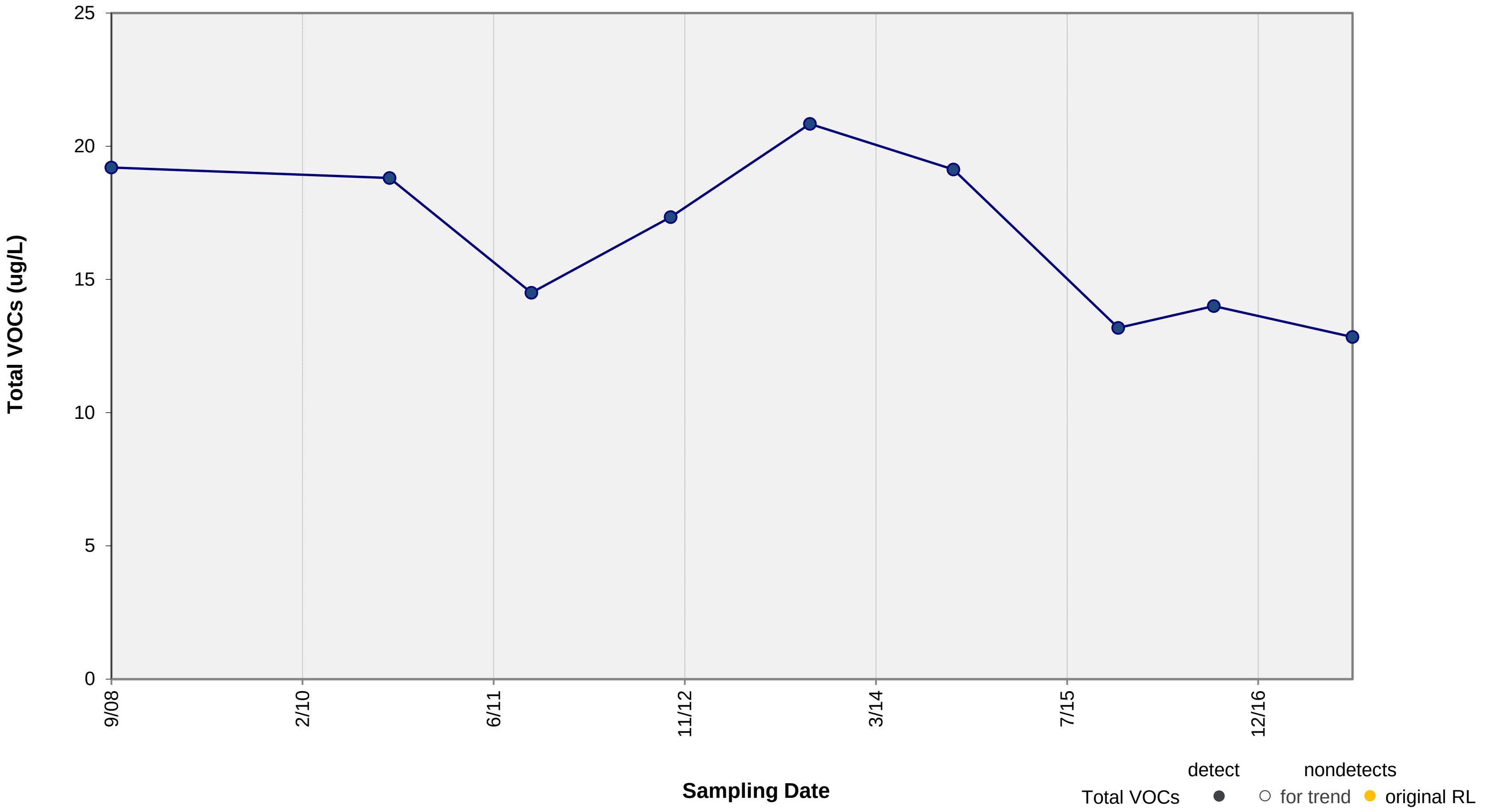
95% Confidence Interval = -2.9E-03 to -1.3E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-20D

RACER Trust, Moraine, Ohio

Figure H-3



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = 0.038 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**

Median Slope Estimate = -2.0E-03 ug/L Per Day

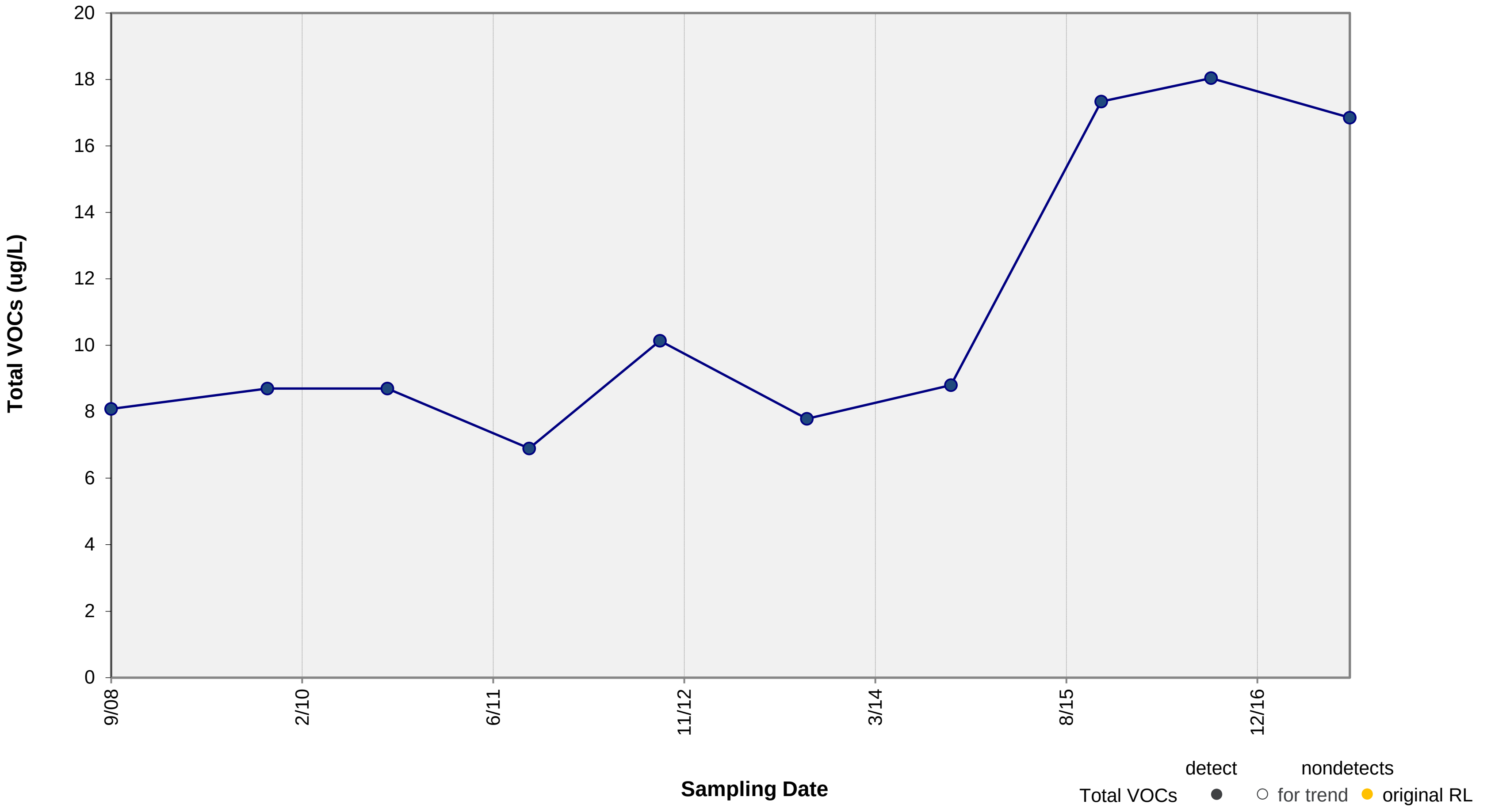
95% Confidence Interval = -4.4E-03 to 6.8E-05 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-09 (after July 2008)

RACER Trust, Moraine, Ohio

Figure H-4



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.019 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.7E-03 ug/L Per Day

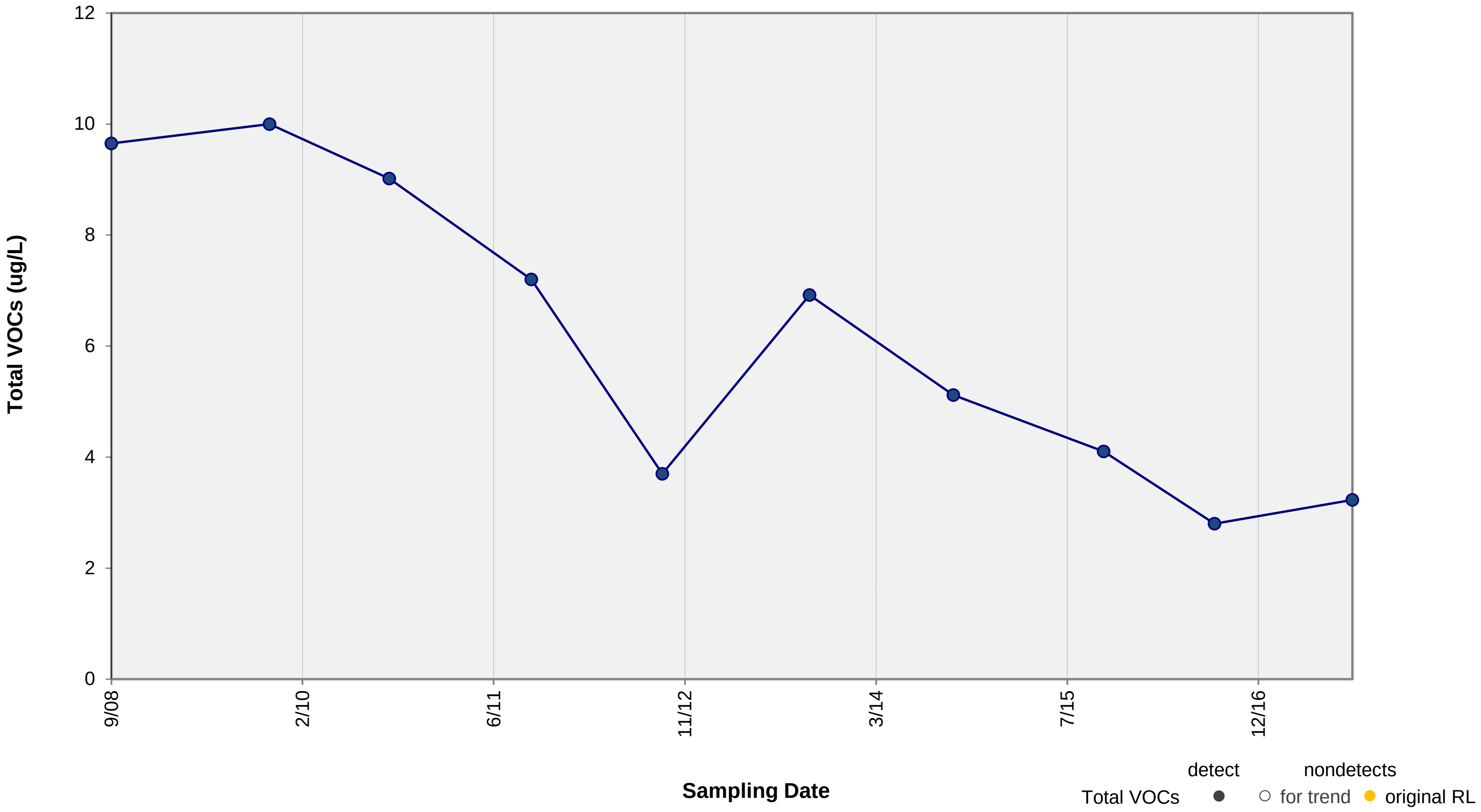
95% Confidence Interval = 3.3E-05 to 4.6E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-15 (after July 2008)

RACER Trust, Moraine, Ohio

Figure H-5



Results of Mann-Kendall Test for Trend: **DECREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **DECREASING TREND**

Median Slope Estimate = -2.4E-03 ug/L Per Day

95% Confidence Interval = -3.3E-03 to -1.8E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-20D (after July 2008)

RACER Trust, Moraine, Ohio

Figure H-6

APPENDIX I

Lagoon Statistics

TABLE I-1
Summary Statistics and Trend Results
RACER Trust Moraine Facilities
Moraine, Ohio

Well ID	Up or Down Grad-ient	Analyte	Figure	Date Range	FOD	Detected Results Summary (ug/L)			MCL (ug/L)	Linear Correl-ation R^2	Mann-Kendall Test			Sen's Estimator of Slope	
						Range	Mean	SD			Result	P-Value	S Value	Result	Slope (Units/Day)
HR-04	North	1,1,1-Trichloroethane	I-3	11/01 - 08/17	7 / 17	0.17 - 2	0.93	0.78	200	**0.528**	UP	<0.001	69	NT	0.0000460
W-2-N	North	1,1,1-Trichloroethane	--	11/01 - 08/17	4 / 17	0.25 - 0.48	0.33	0.1	200	0.162	NST	0.144	-20	NT	0
W-3-N	North	1,1,1-Trichloroethane	--	11/01 - 08/17	0 / 17	--	--	--	200	--	--	--	--	--	--
W-4-N	North	1,1,1-Trichloroethane	--	11/01 - 08/17	8 / 17	0.26 - 0.47	0.38	0.067	200	0.209	DWN	0.022	-46	NT	-0.00000376
HR-04	North	1,1-Dichloroethane	I-4	11/01 - 08/17	14 / 17	0.77 - 5.5	2.9	1.5	--	0.128	UP	0.021	50	NT	0.000271
W-2-N	North	1,1-Dichloroethane	--	11/01 - 08/17	6 / 17	0.22 - 0.36	0.3	0.048	--	0.514	DWN	<0.001	-67	NT	-0.00000680
W-3-N	North	1,1-Dichloroethane	--	11/01 - 08/17	0 / 17	--	--	--	--	--	--	--	--	--	--
W-4-N	North	1,1-Dichloroethane	I-5	11/01 - 08/17	17 / 17	0.89 - 7.1	3	2.1	--	**0.697**	UP	<0.001	98	UP	0.000815
HR-04	North	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
W-2-N	North	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
W-3-N	North	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
W-4-N	North	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
HR-04	North	Benzene	--	11/01 - 08/17	0 / 17	--	--	--	5	--	--	--	--	--	--
W-2-N	North	Benzene	--	11/01 - 08/17	0 / 17	--	--	--	5	--	--	--	--	--	--
W-3-N	North	Benzene	--	11/01 - 08/17	0 / 17	--	--	--	5	--	--	--	--	--	--
W-4-N	North	Benzene	--	11/01 - 08/17	0 / 17	--	--	--	5	--	--	--	--	--	--
HR-04	North	cis-1,2-Dichloroethene	I-6	11/01 - 08/17	8 / 17	0.23 - 0.45	0.32	0.08	70	0.400	UP	0.016	49	NT	0.0000105
W-2-N	North	cis-1,2-Dichloroethene	--	11/01 - 08/17	17 / 17	0.89 - 2.8	1.5	0.43	70	0.113	NST	0.308	13	NST	0.0000113
W-3-N	North	cis-1,2-Dichloroethene	--	11/01 - 08/17	17 / 17	22 - 160	77.9	46.5	70	0.873	DWN	<0.001	-120	DWN	-0.0236
W-4-N	North	cis-1,2-Dichloroethene	I-7	11/01 - 08/17	17 / 17	1.6 - 14	6.9	3.9	70	**0.529**	UP	0.001	73	UP	0.00145
HR-04	North	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
W-2-N	North	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
W-3-N	North	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
W-4-N	North	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
HR-04	North	Tetrachloroethene	--	11/01 - 08/17	12 / 17	0.21 - 1.3	0.51	0.3	5	0.530	DWN	<0.001	-98	DWN	-0.0000796
W-2-N	North	Tetrachloroethene	--	11/01 - 08/17	1 / 17	0.31 - 0.31	0.31	0	5	0.0665	NST	0.179	-10	NT	0
W-3-N	North	Tetrachloroethene	--	11/01 - 08/17	8 / 17	0.52 - 9	2.4	3	5	0.291	NST	0.053	-37	NT	-0.0000125
W-4-N	North	Tetrachloroethene	--	11/01 - 08/17	15 / 17	0.38 - 1.7	0.82	0.35	5	0.526	DWN	<0.001	-81	DWN	-0.000134
HR-04	North	Toluene	--	11/01 - 08/17	0 / 17	--	--	--	1000	--	--	--	--	--	--
W-2-N	North	Toluene	--	11/01 - 08/17	1 / 17	0.28 - 0.28	0.28	0	1000	0.0106	NST	0.380	-4	NT	0
W-3-N	North	Toluene	--	11/01 - 08/17	0 / 17	--	--	--	1000	--	--	--	--	--	--
W-4-N	North	Toluene	--	11/01 - 08/17	0 / 17	--	--	--	1000	--	--	--	--	--	--
HR-04	North	trans-1,2-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	100	--	--	--	--	--	--
W-2-N	North	trans-1,2-Dichloroethene	--	11/01 - 08/17	2 / 17	0.18 - 0.2	0.19	0.014	100	0.0885	NST	0.117	-17	NT	0
W-3-N	North	trans-1,2-Dichloroethene	--	11/01 - 08/17	16 / 17	0.34 - 2.2	1	0.57	100	0.512	DWN	<0.001	-89	DWN	-0.000275
W-4-N	North	trans-1,2-Dichloroethene	I-8	11/01 - 08/17	14 / 17	0.19 - 1.2	0.57	0.27	100	0.406	UP	<0.001	76	UP	0.0000908
HR-04	North	Trichloroethene	--	11/01 - 08/17	14 / 17	0.27 - 1	0.43	0.22	5	0.519	DWN	0.002	-71	DWN	-0.0000395
W-2-N	North	Trichloroethene	--	11/01 - 08/17	12 / 17	0.2 - 1.6	0.92	0.49	5	0.0820	NST	0.105	-31	NST	-0.000161
W-3-N	North	Trichloroethene	--	11/01 - 08/17	2 / 17	1.7 - 2.1	1.9	0.28	5	0.209	DWN	0.019	-29	NT	0
W-4-N	North	Trichloroethene	--	11/01 - 08/17	17 / 17	6.3 - 15	9.4	2.4	5	0.0347	NST	0.171	24	NST	0.000288
HR-04	North	Vinyl chloride	--	11/01 - 08/17	0 / 17	--	--	--	2	--	--	--	--	--	--
W-2-N	North	Vinyl chloride	--	11/01 - 08/17	0 / 17	--	--	--	2	--	--	--	--	--	--
W-3-N	North	Vinyl chloride	--	11/01 - 08/17	17 / 17	1 - 9.6	4.2	2.8	2	0.760	DWN	<0.001	-97	DWN	-0.00130
W-4-N	North	Vinyl chloride	--	11/01 - 08/17	9 / 17	0.18 - 0.96	0.51	0.24	2	0.371	DWN	0.004	-62	NT	-0.0000747
HR-04	North	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--
W-2-N	North	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--
W-3-N	North	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--
W-4-N	North	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--

Well ID	Up or Down Grad-ient	Analyte	Figure	Date Range	FOD	Detected Results Summary (ug/L)			MCL (ug/L)	Linear Correl-ation R^2	Mann-Kendall Test			Sen's Estimator of Slope	
						Range	Mean	SD			Result	P-Value	S Value	Result	Slope (Units/Day)
Table I-1 continued															
HR-17	South	1,1,1-Trichloroethane	--	11/01 - 08/17	5 / 17	0.39 - 1.5	1.1	0.46	200	0.0363	NST	0.398	6	NT	0
W-2-S	South	1,1,1-Trichloroethane	--	11/01 - 08/17	16 / 17	0.79 - 1.8	1.5	0.24	200	0.204	NST	0.071	-36	NT	-0.0000411
W-3-S	South	1,1,1-Trichloroethane	--	11/01 - 08/17	15 / 17	0.49 - 2.5	1.4	0.74	200	0.707	DWN	<0.001	-89	DWN	-0.000310
W-4-S	South	1,1,1-Trichloroethane	--	11/01 - 08/17	21 / 21	0.95 - 2.9	1.7	0.5	200	0.361	DWN	0.001	-102	DWN	-0.000266
HR-17	South	1,1-Dichloroethane	--	11/01 - 08/17	13 / 17	0.6 - 2	1.2	0.56	--	0.0218	NST	0.294	-14	NST	-0.0000186
W-2-S	South	1,1-Dichloroethane	--	11/01 - 08/17	17 / 17	0.58 - 1.3	1	0.2	--	0.0111	NST	0.239	-18	NST	-0.0000285
W-3-S	South	1,1-Dichloroethane	I-9	11/01 - 08/17	8 / 17	0.21 - 1.2	0.62	0.37	--	0.330	UP	0.006	57	NT	0.0000353
W-4-S	South	1,1-Dichloroethane	I-10	11/01 - 08/17	21 / 21	0.87 - 2.7	1.5	0.42	--	**0.607**	UP	<0.001	123	UP	0.000186
HR-17	South	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
W-2-S	South	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
W-3-S	South	1,1-Dichloroethene	--	11/01 - 08/17	0 / 17	--	--	--	7	--	--	--	--	--	--
W-4-S	South	1,1-Dichloroethene	--	11/01 - 08/17	1 / 21	0.21 - 0.21	0.21	0	7	0.000775	NST	0.467	2	NT	0
HR-17	South	Benzene	--	11/01 - 08/17	0 / 17	--	--	--	5	--	--	--	--	--	--
W-2-S	South	Benzene	--	11/01 - 08/17	1 / 17	0.43 - 0.43	0.43	0	5	0.0000393	NST	0.541	0	NT	0
W-3-S	South	Benzene	--	11/01 - 08/17	0 / 17	--	--	--	5	--	--	--	--	--	--
W-4-S	South	Benzene	--	11/01 - 08/17	0 / 21	--	--	--	5	--	--	--	--	--	--
HR-17	South	cis-1,2-Dichloroethene	--	11/01 - 08/17	14 / 17	1.4 - 7.1	2.9	1.6	70	0.220	NST	0.057	-39	NST	-0.000265
W-2-S	South	cis-1,2-Dichloroethene	I-11	11/01 - 08/17	16 / 17	0.49 - 2.4	1.1	0.48	70	0.456	UP	0.003	66	UP	0.000138
W-3-S	South	cis-1,2-Dichloroethene	I-12	11/01 - 08/17	10 / 17	0.33 - 2.6	1.3	0.84	70	**0.682**	UP	<0.001	87	UP	0.000278
W-4-S	South	cis-1,2-Dichloroethene	I-13	11/01 - 08/17	21 / 21	3.3 - 22	7.1	4.2	70	**0.616**	UP	<0.001	168	UP	0.00158
HR-17	South	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
W-2-S	South	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
W-3-S	South	Ethylbenzene	--	11/01 - 08/17	0 / 17	--	--	--	700	--	--	--	--	--	--
W-4-S	South	Ethylbenzene	--	11/01 - 08/17	0 / 21	--	--	--	700	--	--	--	--	--	--
HR-17	South	Tetrachloroethene	I-14	11/01 - 08/17	17 / 17	3.3 - 170	95.1	55.2	5	**0.820**	UP	<0.001	102	UP	0.0271
W-2-S	South	Tetrachloroethene	--	11/01 - 08/17	10 / 17	0.31 - 0.55	0.37	0.071	5	0.000306	NST	0.184	22	NST	0
W-3-S	South	Tetrachloroethene	I-15	11/01 - 08/17	17 / 17	0.44 - 68	16.1	25.5	5	**0.642**	UP	<0.001	106	UP	0.00532
W-4-S	South	Tetrachloroethene	I-16	11/01 - 08/17	21 / 21	13 - 74	32.4	17.1	5	**0.668**	UP	<0.001	150	UP	0.00727
HR-17	South	Toluene	--	11/01 - 08/17	0 / 17	--	--	--	1000	--	--	--	--	--	--
W-2-S	South	Toluene	--	11/01 - 08/17	1 / 17	0.25 - 0.25	0.25	0	1000	0.0948	NST	0.131	-12	NT	0
W-3-S	South	Toluene	--	11/01 - 08/17	0 / 17	--	--	--	1000	--	--	--	--	--	--
W-4-S	South	Toluene	--	11/01 - 08/17	1 / 21	0.25 - 0.25	0.25	0	1000	0.0766	NST	0.108	-16	NT	0
HR-17	South	trans-1,2-Dichloroethene	--	11/01 - 08/17	11 / 17	0.46 - 1.6	0.96	0.37	100	0.129	NST	0.064	-37	NT	-0.0000478
W-2-S	South	trans-1,2-Dichloroethene	I-17	11/01 - 08/17	4 / 17	0.3 - 0.47	0.38	0.074	100	0.338	UP	0.002	52	NT	0
W-3-S	South	trans-1,2-Dichloroethene	I-18	11/01 - 08/17	5 / 17	0.19 - 0.59	0.43	0.18	100	0.205	UP	0.015	43	NT	0
W-4-S	South	trans-1,2-Dichloroethene	I-19	11/01 - 08/17	21 / 21	0.43 - 2.1	1.2	0.35	100	**0.509**	UP	<0.001	106	UP	0.000176
HR-17	South	Trichloroethene	I-20	11/01 - 08/17	16 / 17	4.2 - 160	45.1	52.2	5	0.331	UP	0.003	68	UP	0.0124
W-2-S	South	Trichloroethene	I-21	11/01 - 08/17	17 / 17	4.9 - 23	6.8	4.2	5	0.147	UP	0.019	51	UP	0.000253
W-3-S	South	Trichloroethene	I-22	11/01 - 08/17	17 / 17	1.5 - 97	12	23.6	5	0.239	UP	<0.001	80	UP	0.00112
W-4-S	South	Trichloroethene	I-23	11/01 - 08/17	21 / 21	8.9 - 72	24.4	18.3	5	**0.677**	UP	<0.001	158	UP	0.00545
HR-17	South	Vinyl chloride	--	11/01 - 08/17	0 / 17	--	--	--	2	--	--	--	--	--	--
W-2-S	South	Vinyl chloride	--	11/01 - 08/17	0 / 17	--	--	--	2	--	--	--	--	--	--
W-3-S	South	Vinyl chloride	--	11/01 - 08/17	0 / 17	--	--	--	2	--	--	--	--	--	--
W-4-S	South	Vinyl chloride	--	11/01 - 08/17	0 / 21	--	--	--	2	--	--	--	--	--	--
HR-17	South	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--
W-2-S	South	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--
W-3-S	South	Xylene (total)	--	11/01 - 08/17	0 / 17	--	--	--	10000	--	--	--	--	--	--
W-4-S	South	Xylene (total)	--	11/01 - 08/17	0 / 21	--	--	--	10000	--	--	--	--	--	--

Abbreviations:

-- = insufficient data for calculating statistics (n < 4)
FOD = frequency of detection (# detects / # samples)
MCL = maximum contaminant level
mean = arithmetic mean
R^2 = linear regression coefficient of determination
SD = standard deviation

NST = no significant trend
NT = no trend
DWN = downward trend
UP = upward trend

Notes:

1. All analytical results are in ug/L. Result values less than 10 are reported to 2 significant figures; values greater than 10 are reported to 3 significant figures.
P-values are reported to 3 decimal places.
2. Trend results are presented when at least four samples and one detected value are available.
Non-detects were assigned a common value less than the minimum detected value (95% of the minimum detected value) (USEPA, 2009).
3. Field duplicate results were not included.
4. Statistical testing of the null hypothesis: no significant trend (slope = 0) and the alternative hypothesis: significant trend (slope ≠ 0) with 95% confidence.

Reference:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.

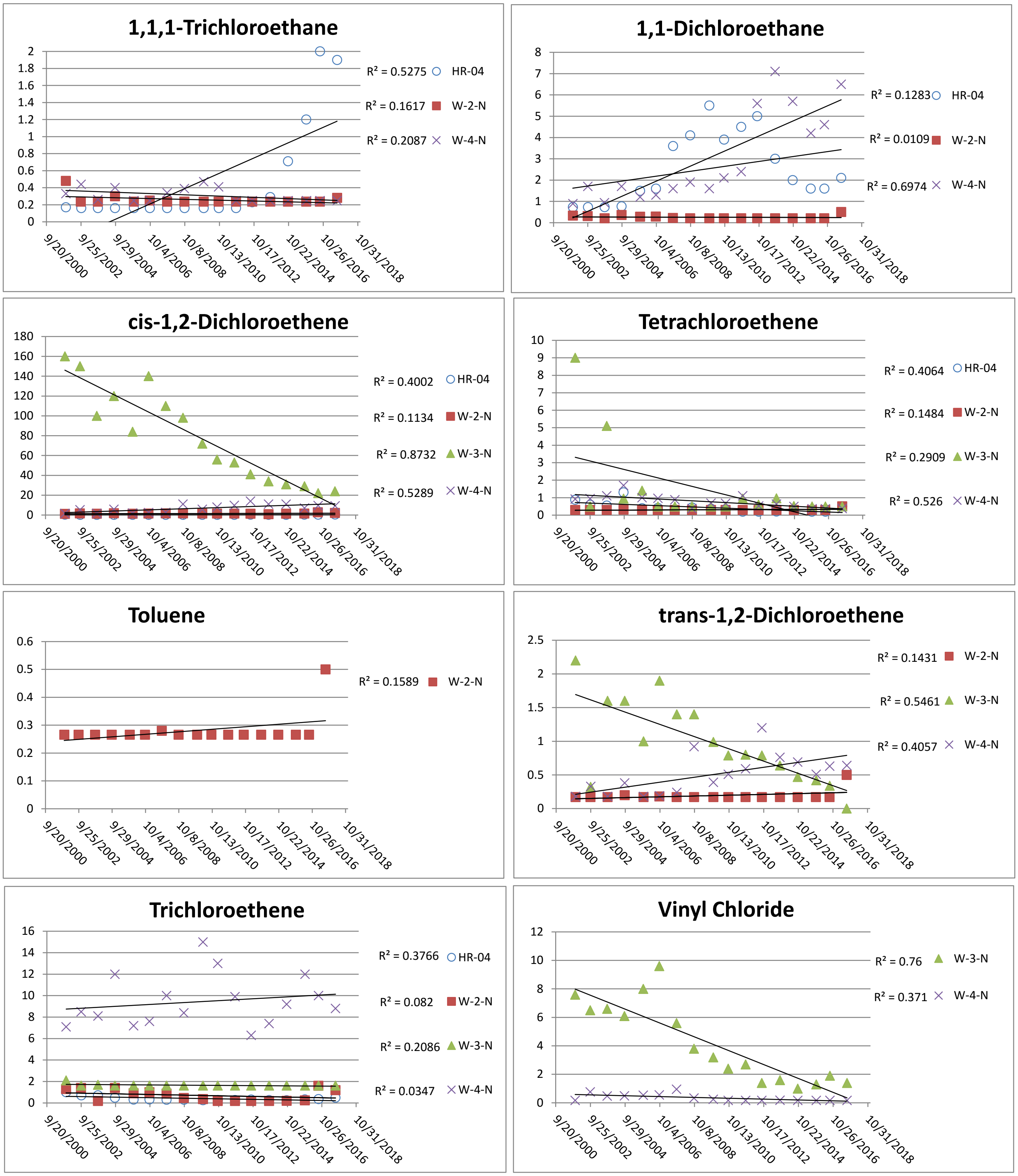
TABLE I-2
Matrix of Trend Results
RACER Trust Moraine Facilities
Moraine, Ohio

Lagoon:	North											
Well:	**HR-04**			**W-2-N**			**W-3-N**			**W-4-N**		
VOC Constituent	**R^2**	**MK**	**SSE**	**R^2**	**MK**	**SSE**	**R^2**	**MK**	**SSE**	**R^2**	**MK**	**SSE**
1,1,1-Trichloroethane	>0.5	▲	↔	--	↔	↔	--	ND	ND	--	▼	↔
1,1-Dichloroethane	--	▲	↔	>0.5	▼	↔	--	ND	ND	>0.5	▲	▲
1,1-Dichloroethene	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND
Benzene	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND
cis-1,2-Dichloroethene	--	▲	↔	--	↔	↔	>0.5	▼	▼	>0.5	▲	▲
Ethylbenzene	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND
Tetrachloroethene	>0.5	▼	▼	--	↔	↔	--	↔	↔	>0.5	▼	▼
Toluene	--	ND	ND	--	↔	↔	--	ND	ND	--	ND	ND
trans-1,2-Dichloroethene	--	ND	ND	--	↔	↔	>0.5	▼	▼	--	▲	▲
Trichloroethene	>0.5	▼	▼	--	↔	↔	--	▼	↔	--	↔	↔
Vinyl chloride	--	ND	ND	--	ND	ND	>0.5	▼	▼	--	▼	↔
Xylene (total)	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND
Lagoon:	**South**											
Well:	**HR-17**			**W-2-S**			**W-3-S**			**W-4-S**		
VOC Constituent	**R^2**	**MK**	**SSE**	**R^2**	**MK**	**SSE**	**R^2**	**MK**	**SSE**	**R^2**	**MK**	**SSE**
1,1,1-Trichloroethane	--	↔	↔	--	↔	↔	>0.5	▼	▼	--	▼	▼
1,1-Dichloroethane	--	↔	↔	--	↔	↔	--	▲	↔	>0.5	▲	▲
1,1-Dichloroethene	--	ND	ND	--	ND	ND	--	ND	ND	--	↔	↔
Benzene	--	ND	ND	--	↔	↔	--	ND	ND	--	ND	ND
cis-1,2-Dichloroethene	--	↔	↔	--	▲	▲	>0.5	▲	▲	>0.5	▲	▲
Ethylbenzene	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND
Tetrachloroethene	>0.5	▲	▲	--	↔	↔	>0.5	▲	▲	>0.5	▲	▲
Toluene	--	ND	ND	--	↔	↔	--	ND	ND	--	↔	↔
trans-1,2-Dichloroethene	--	↔	↔	--	▲	↔	--	▲	↔	>0.5	▲	▲
Trichloroethene	--	▲	▲	--	▲	▲	--	▲	▲	>0.5	▲	▲
Vinyl chloride	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND
Xylene (total)	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND

Abbreviations:

R^2 = Linear regression coefficient of determination
MK = Mann-Kendall
SSE = Sen's Slope Estimator
-- = R^2 less than 0.5
▲ = Increasing trend (alpha = 0.05)
▼ = Decreasing trend (alpha = 0.05)
ND = 100% Non-detect
↔ = No trend

Figure I-1:
North Settling Lagoon



1,1,1-Trichloroethane

1,1-Dichloroethane

cis-1,2-Dichloroethene

Tetrachloroethene

Toluene

trans-1,2-Dichloroethene

Trichloroethene

Vinyl Chloride

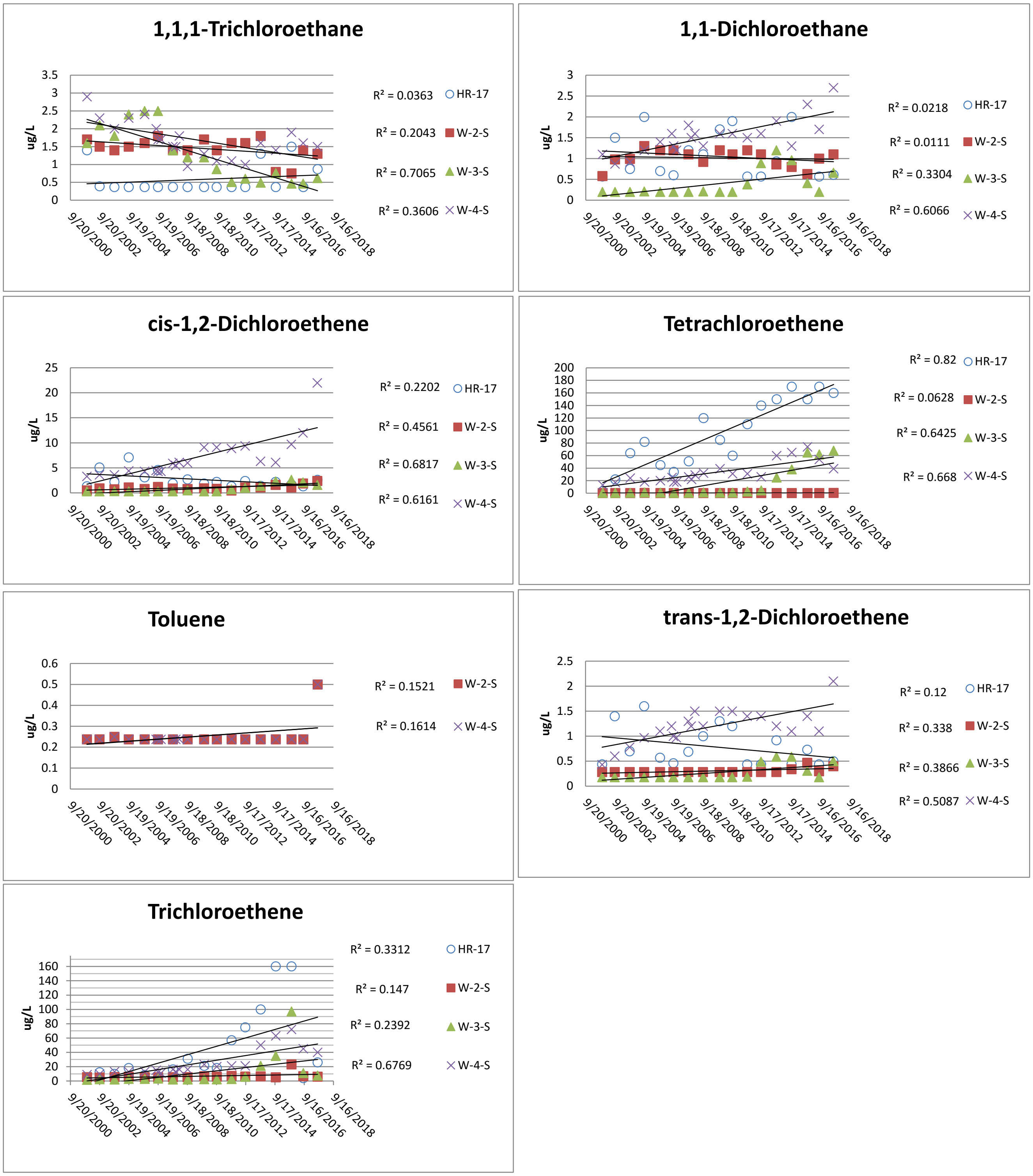
Notes:

All results are in micrograms per liter.

Only datasets with at least one detected value are shown.

There were no detections for 1,1-dichloroethene, benzene, ethylbenzene, or total xylenes.

Figure I-2
South Settling Lagoon



Notes:

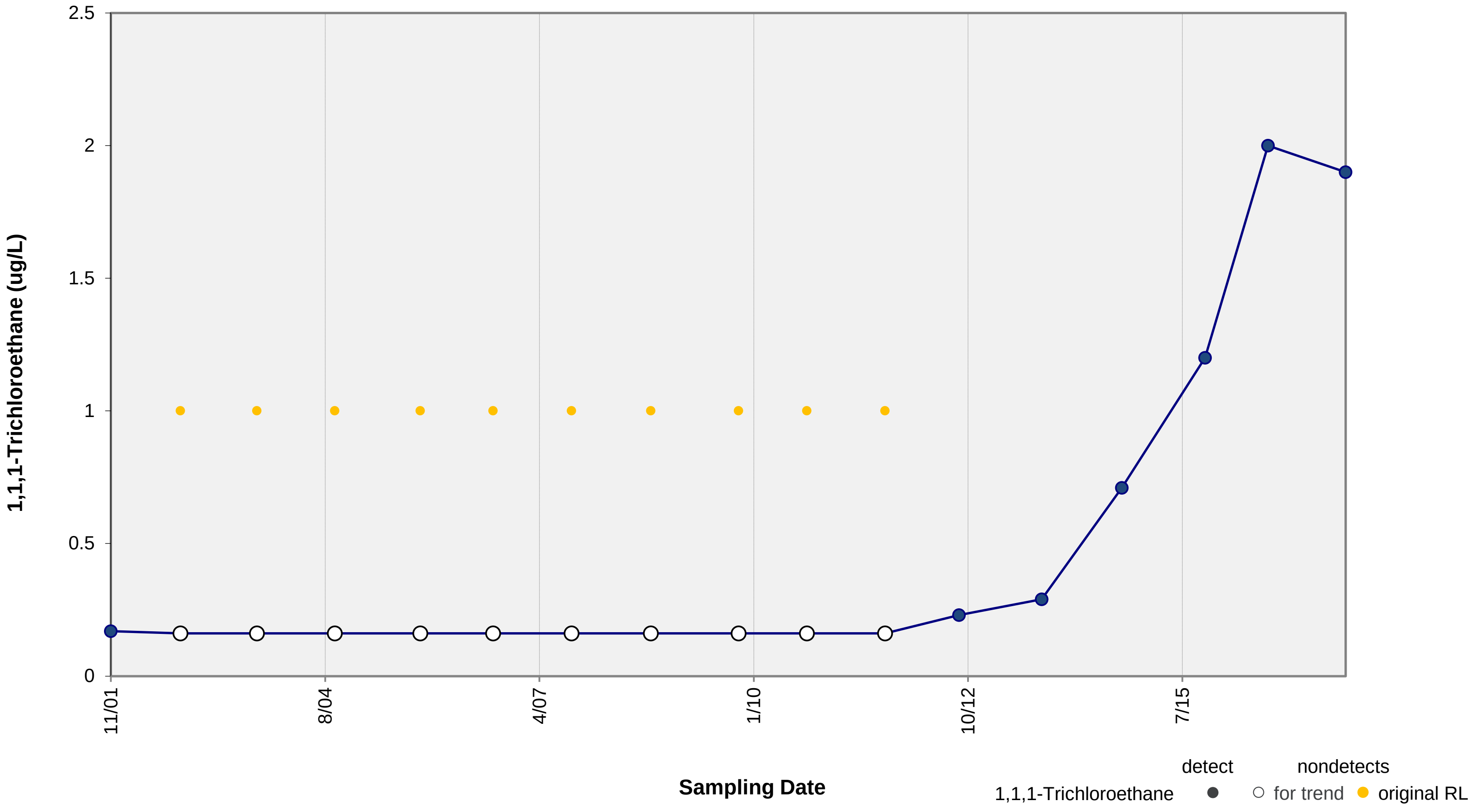
All results are in micrograms per liter.

Only datasets with at least one detected value are shown.

There were no detections for 1,1-dichloroethene, benzene, ethylbenzene, vinyl chloride, or total xylenes.

NA = not available

ND = not detected



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 4.6E-05 ug/L Per Day

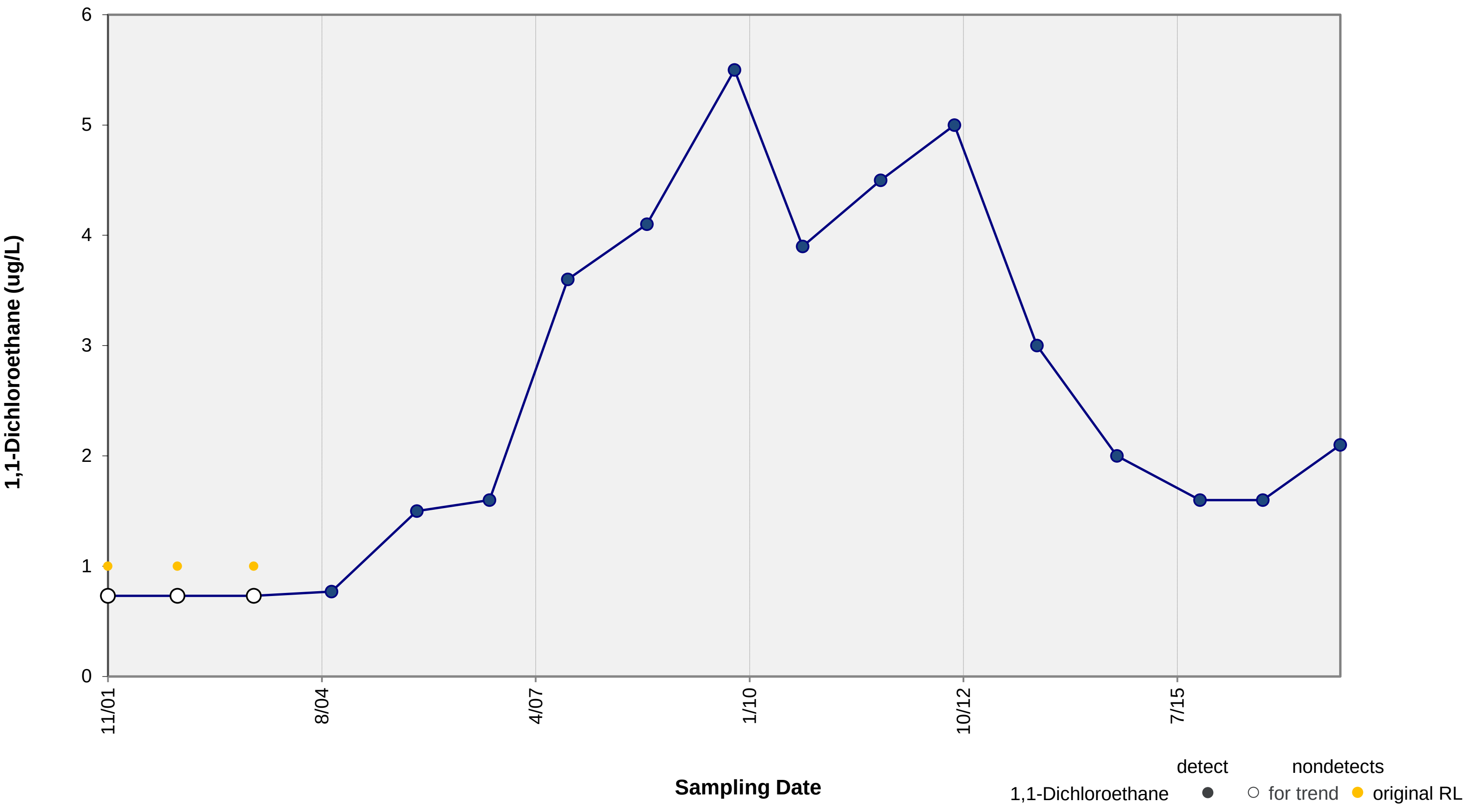
95% Confidence Interval = 0.0E+00 to 2.4E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – 1,1,1-Trichloroethane in Well HR-04

RACER Trust, Moraine, Ohio

Figure I-3



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.021 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 2.7E-04 ug/L Per Day

95% Confidence Interval = 0.0E+00 to 1.0E-03 ug/L Per Day

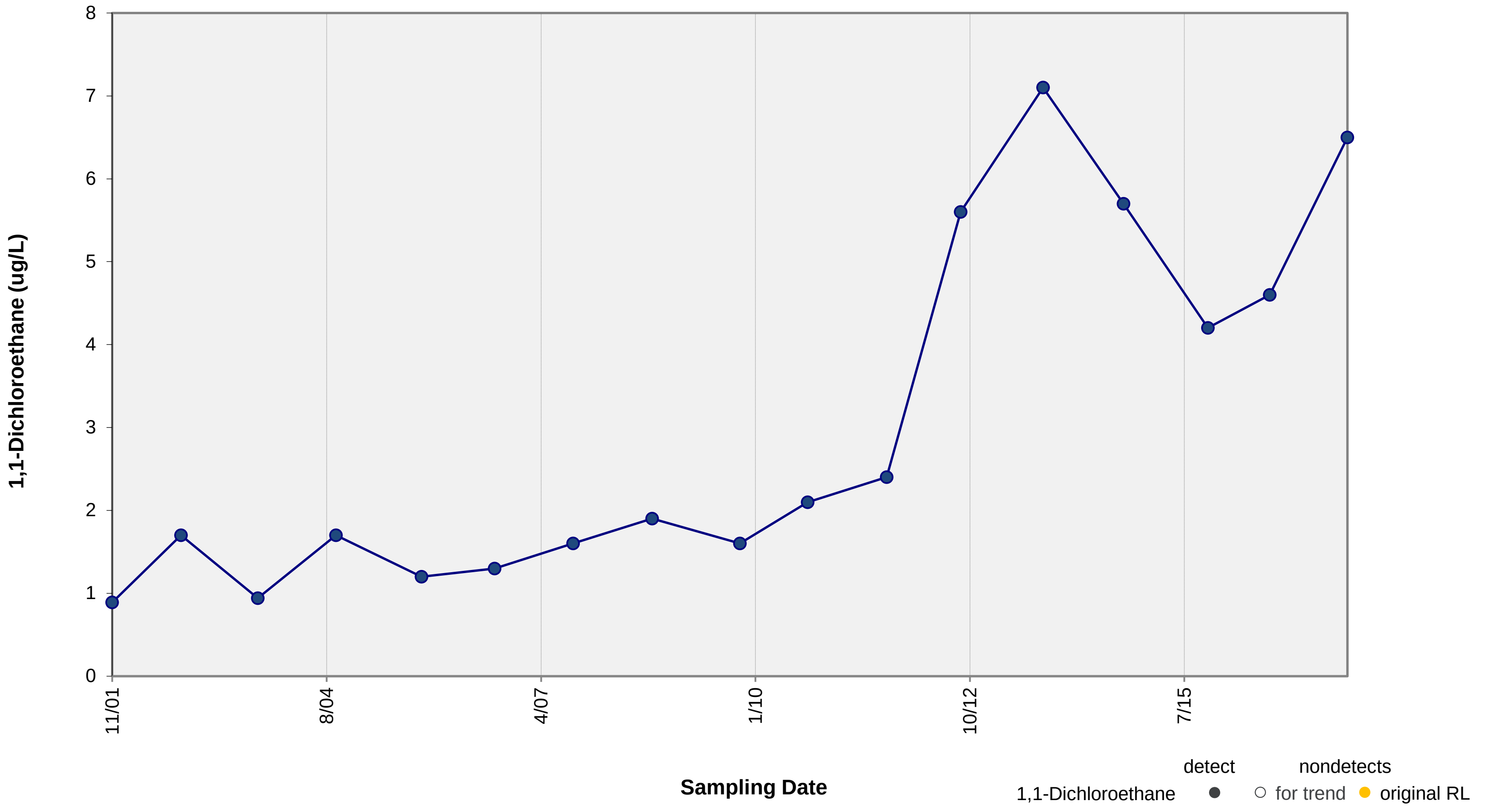
ARCADIS

Concentration vs. Time Plot – 1,1-Dichloroethane in Well HR-04

RACER Trust, Moraine, Ohio

Figure I-4

\\OH02FP01\Data\Public\MOTORS\04- OMM Lagoon_Landfills_GWM\Annual Report\2017\Appendices\Appendix I - Lagoon Statistics_RACER Trust_AppxH_TableH-1-2_FigH-3-23_MKTrendSummary_2018Feb - 2/13/2018



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 8.1E-04 ug/L Per Day

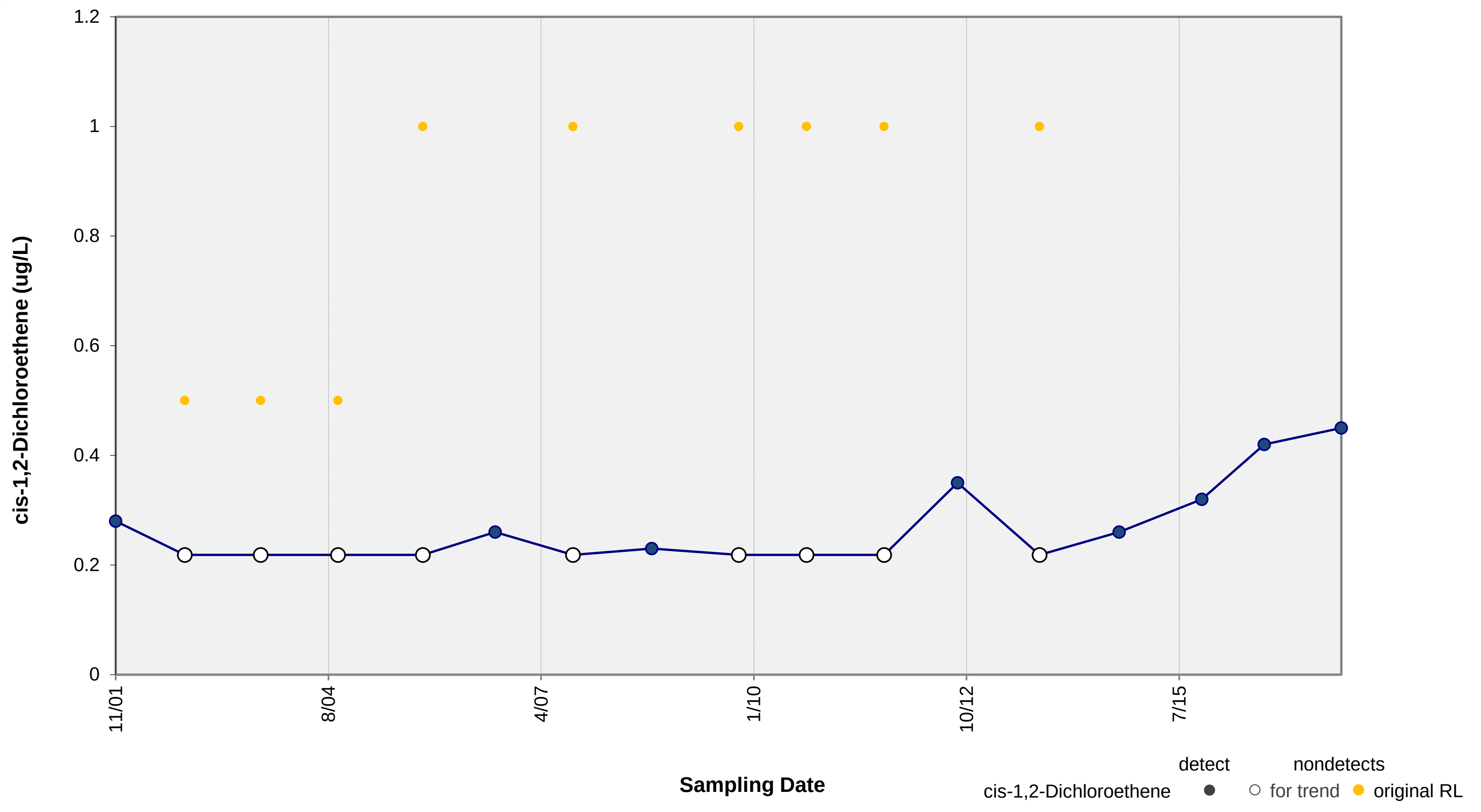
95% Confidence Interval = 4.5E-04 to 1.2E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – 1,1-Dichloroethane in Well W-4-N

RACER Trust, Moraine, Ohio

Figure I-5



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.016 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 1.0E-05 ug/L Per Day

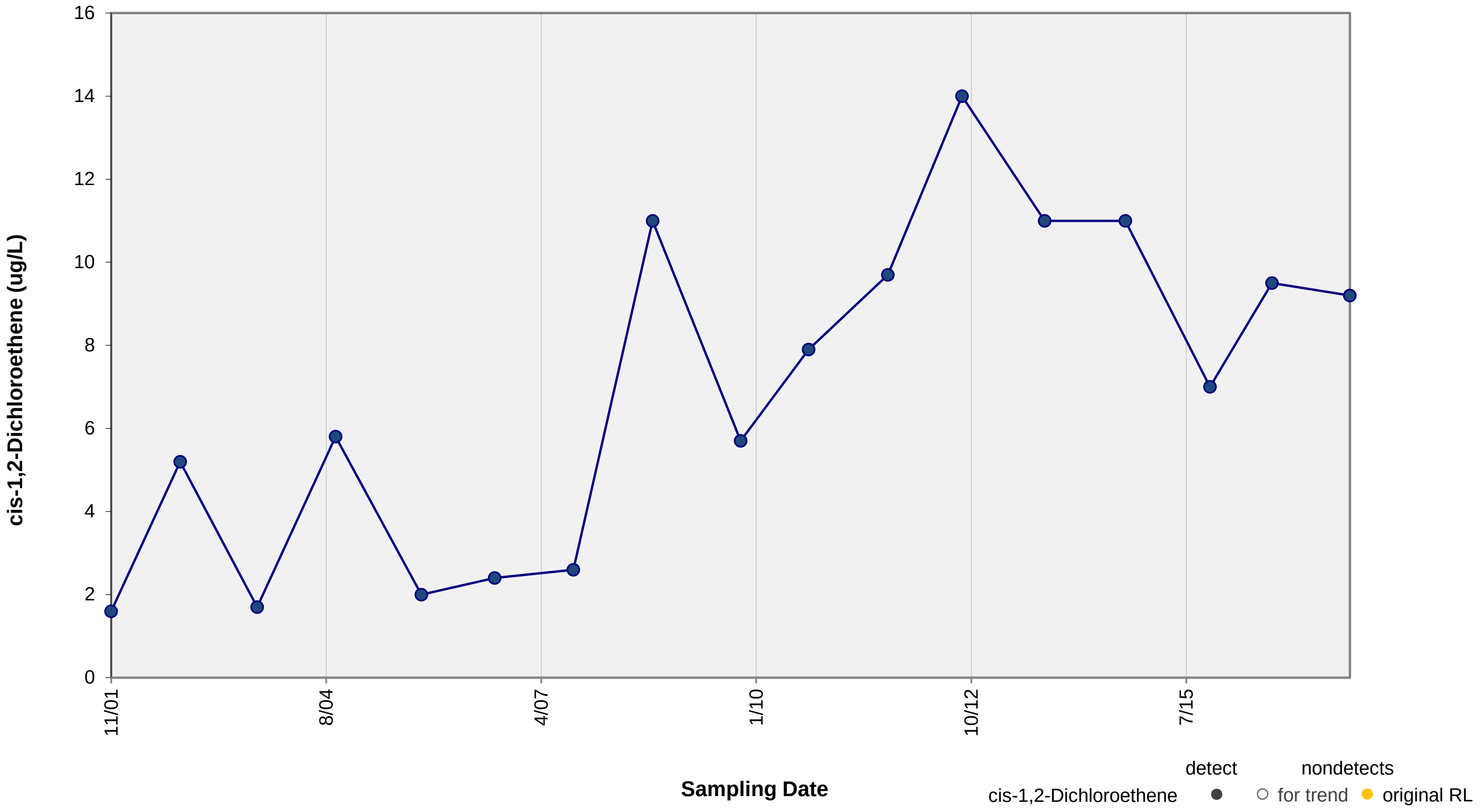
95% Confidence Interval = 0.0E+00 to 3.8E-05 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – cis-1,2-Dichloroethene in Well HR-04

RACER Trust, Moraine, Ohio

Figure I-6



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.5E-03 ug/L Per Day

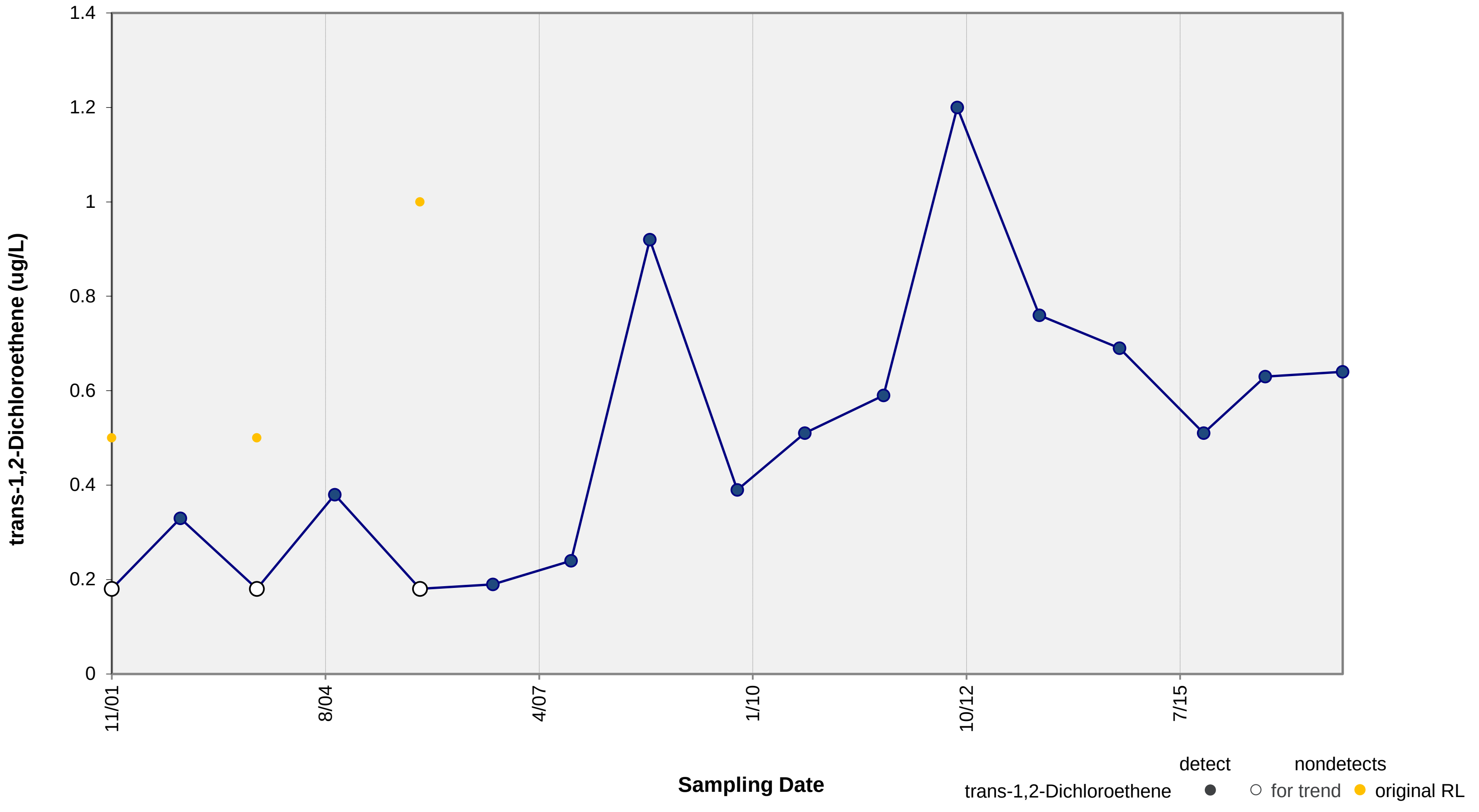
95% Confidence Interval = 6.0E-04 to 2.4E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – cis-1,2-Dichloroethene in Well W-4-N

RACER Trust, Moraine, Ohio

Figure I-7



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 9.1E-05 ug/L Per Day

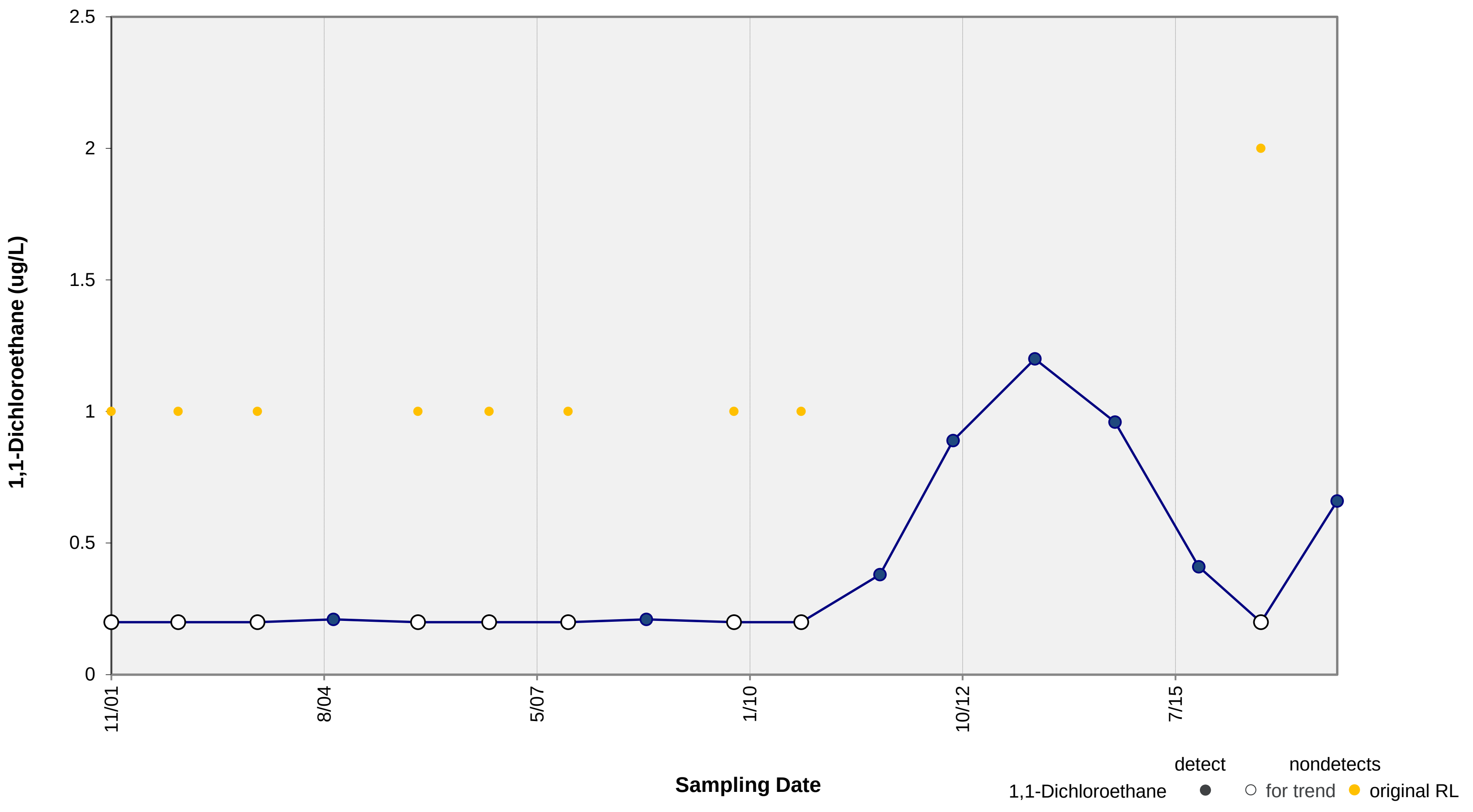
95% Confidence Interval = 4.4E-05 to 1.5E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – trans-1,2-Dichloroethene in Well W-4-N

RACER Trust, Moraine, Ohio

Figure I-8



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.006 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 3.5E-05 ug/L Per Day

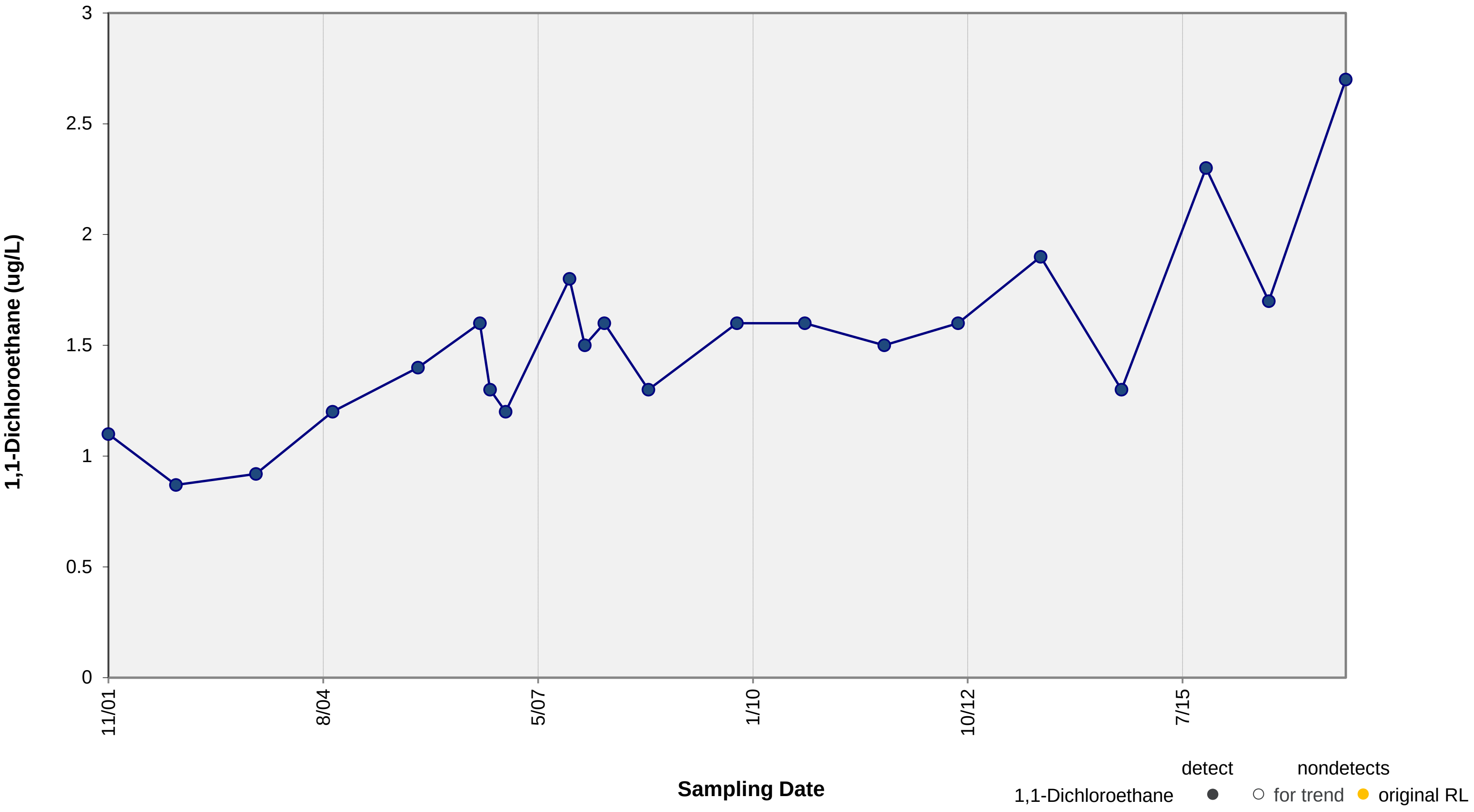
95% Confidence Interval = 0.0E+00 to 1.1E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – 1,1-Dichloroethane in Well W-3-S

RACER Trust, Moraine, Ohio

Figure I-9



Results of Mann-Kendall Test for Trend: **INCREASING TREND**
p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

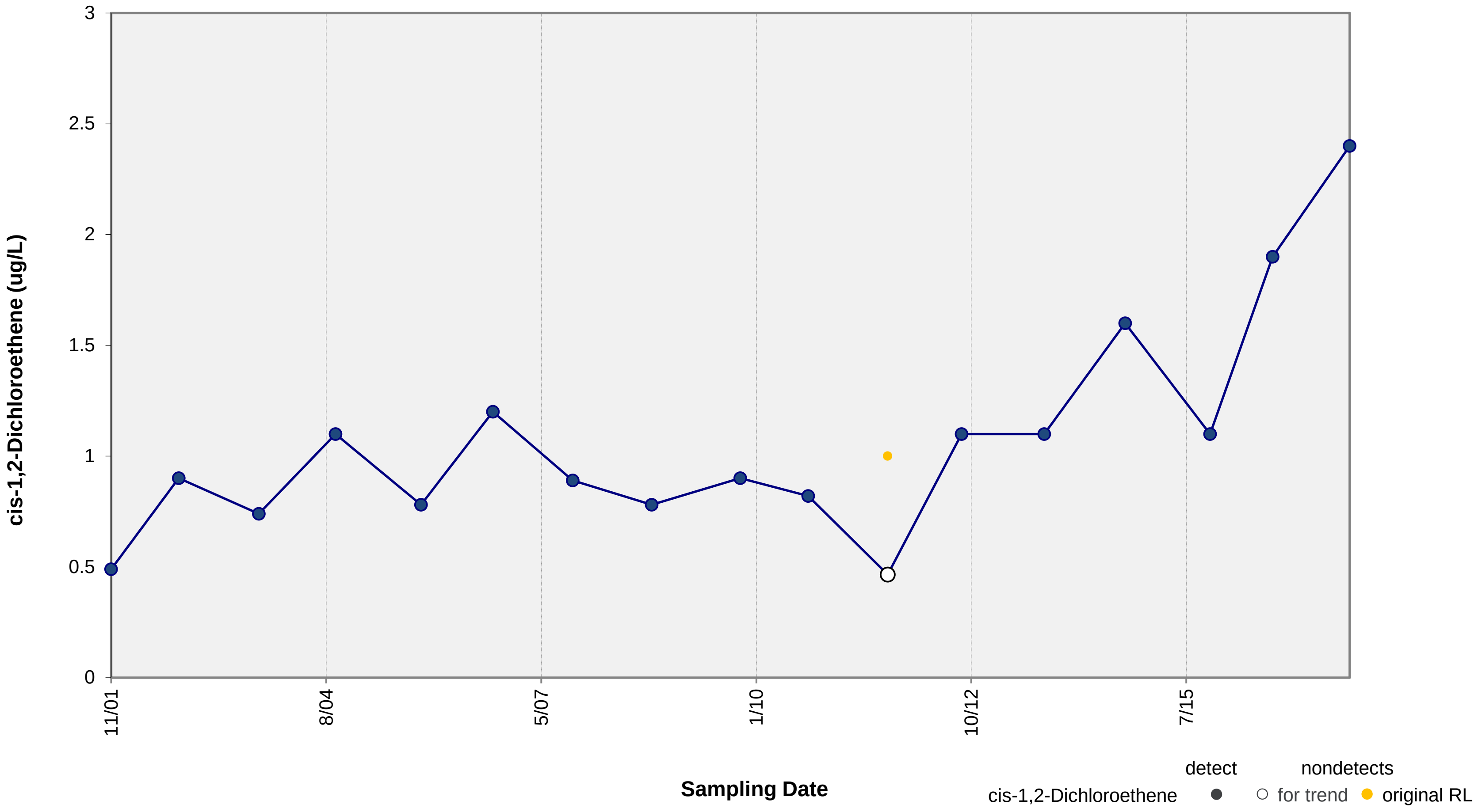
Results of Sen's Estimator of Slope: **INCREASING TREND**
Median Slope Estimate = 1.9E-04 ug/L Per Day
95% Confidence Interval = 1.1E-04 to 2.7E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – 1,1-Dichloroethane in Well W-4-S

RACER Trust, Moraine, Ohio

Figure I-10



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.003 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.4E-04 ug/L Per Day

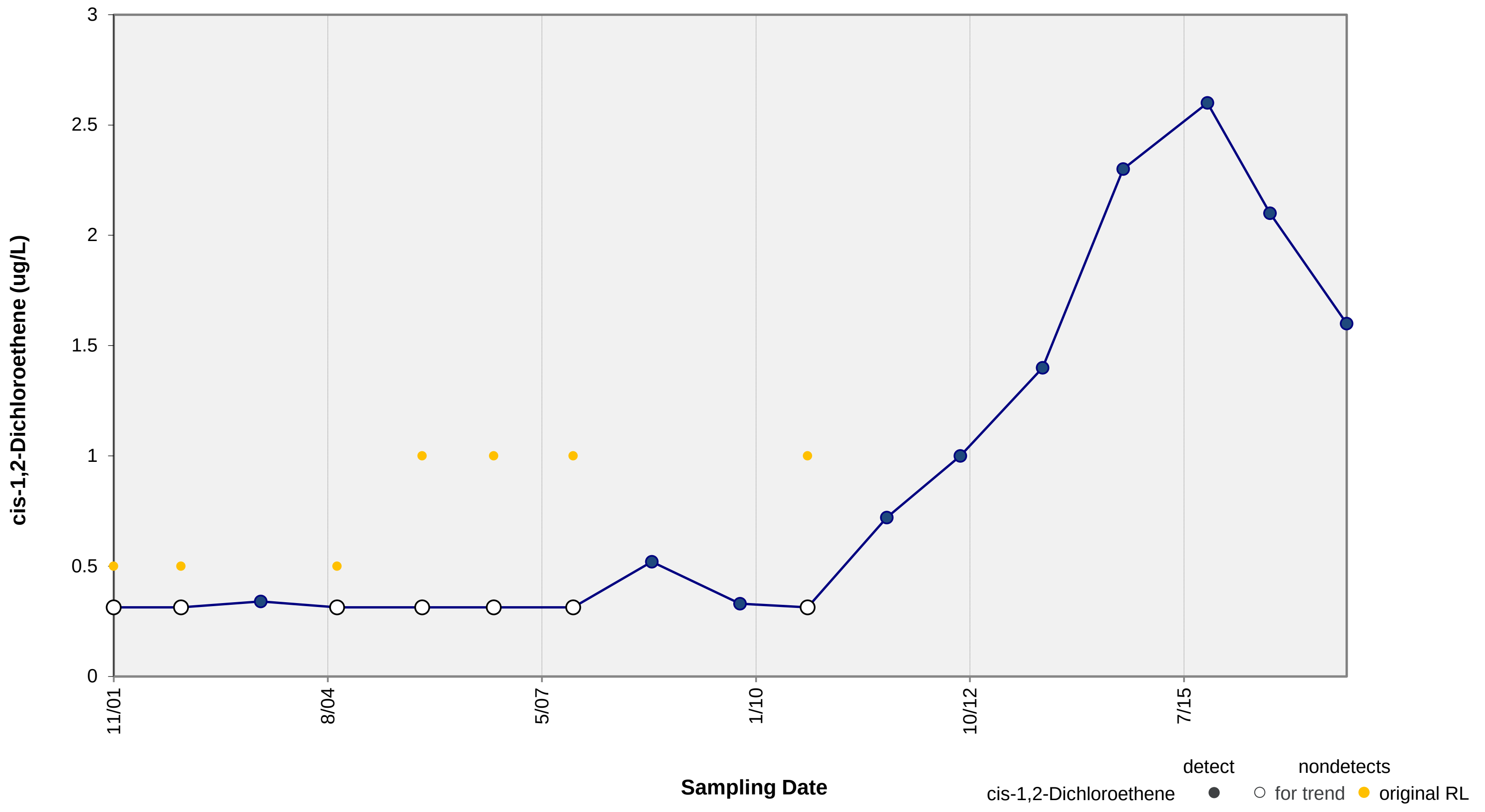
95% Confidence Interval = 4.5E-05 to 2.7E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – cis-1,2-Dichloroethene in Well W-2-S

RACER Trust, Moraine, Ohio

Figure I-11



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.8E-04 ug/L Per Day

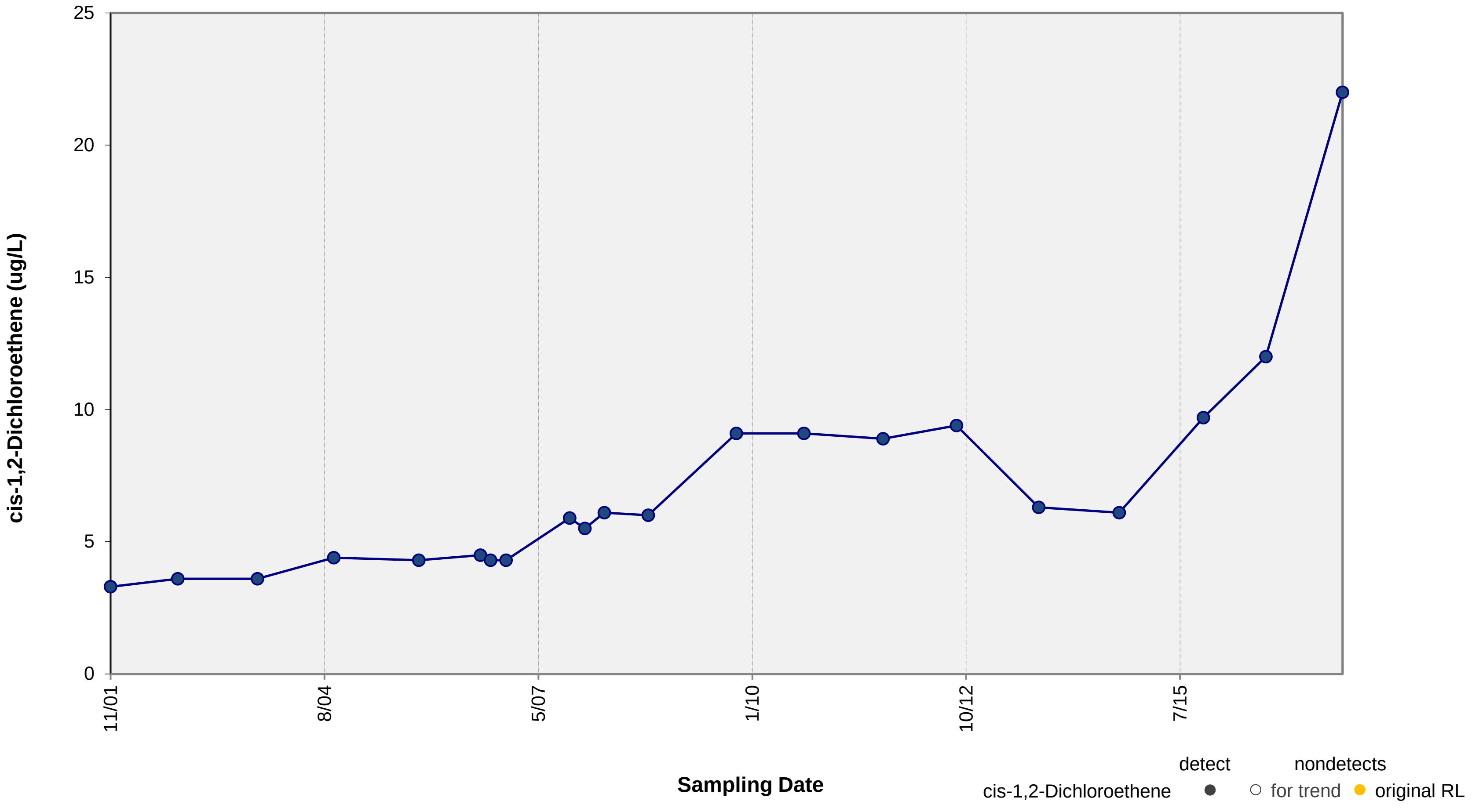
95% Confidence Interval = 9.4E-05 to 4.5E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – cis-1,2-Dichloroethene in Well W-3-S

RACER Trust, Moraine, Ohio

Figure I-12



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.6E-03 ug/L Per Day

95% Confidence Interval = 1.0E-03 to 2.1E-03 ug/L Per Day

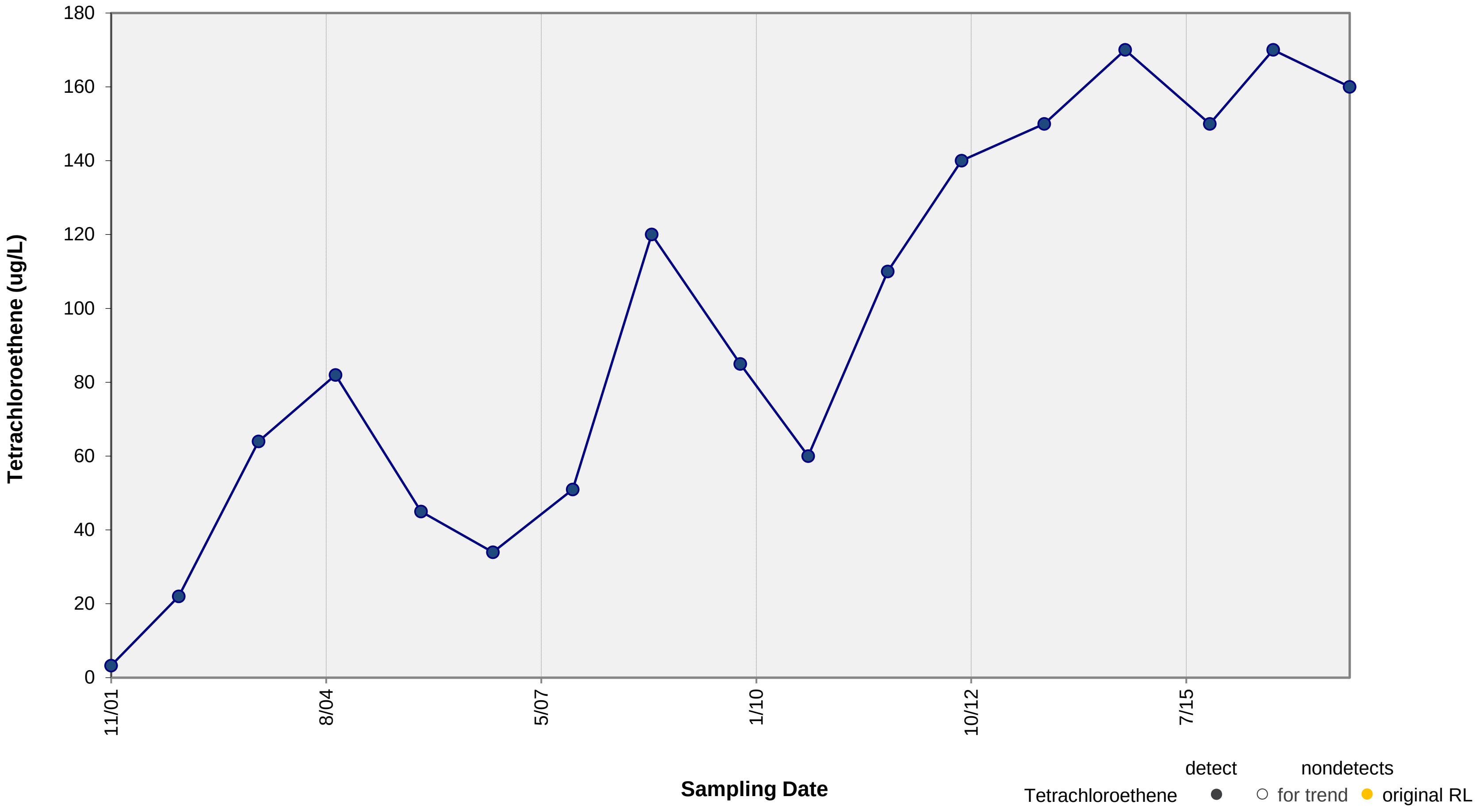
ARCADIS

Concentration vs. Time Plot – cis-1,2-Dichloroethene in Well W-4-S

RACER Trust, Moraine, Ohio

Figure I-13

\\OH02FP01\Data\Public\MOTORS\04- OMM Lagoon_Landfills_GWM\Annual Report\2017\Appendices\Appendix I - Lagoon Statistics_RACER Trust_AppxH_TableH-1-2_FigH-3-23_MKTrendSummary_2018Feb - 2/13/2018



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.7E-02 ug/L Per Day

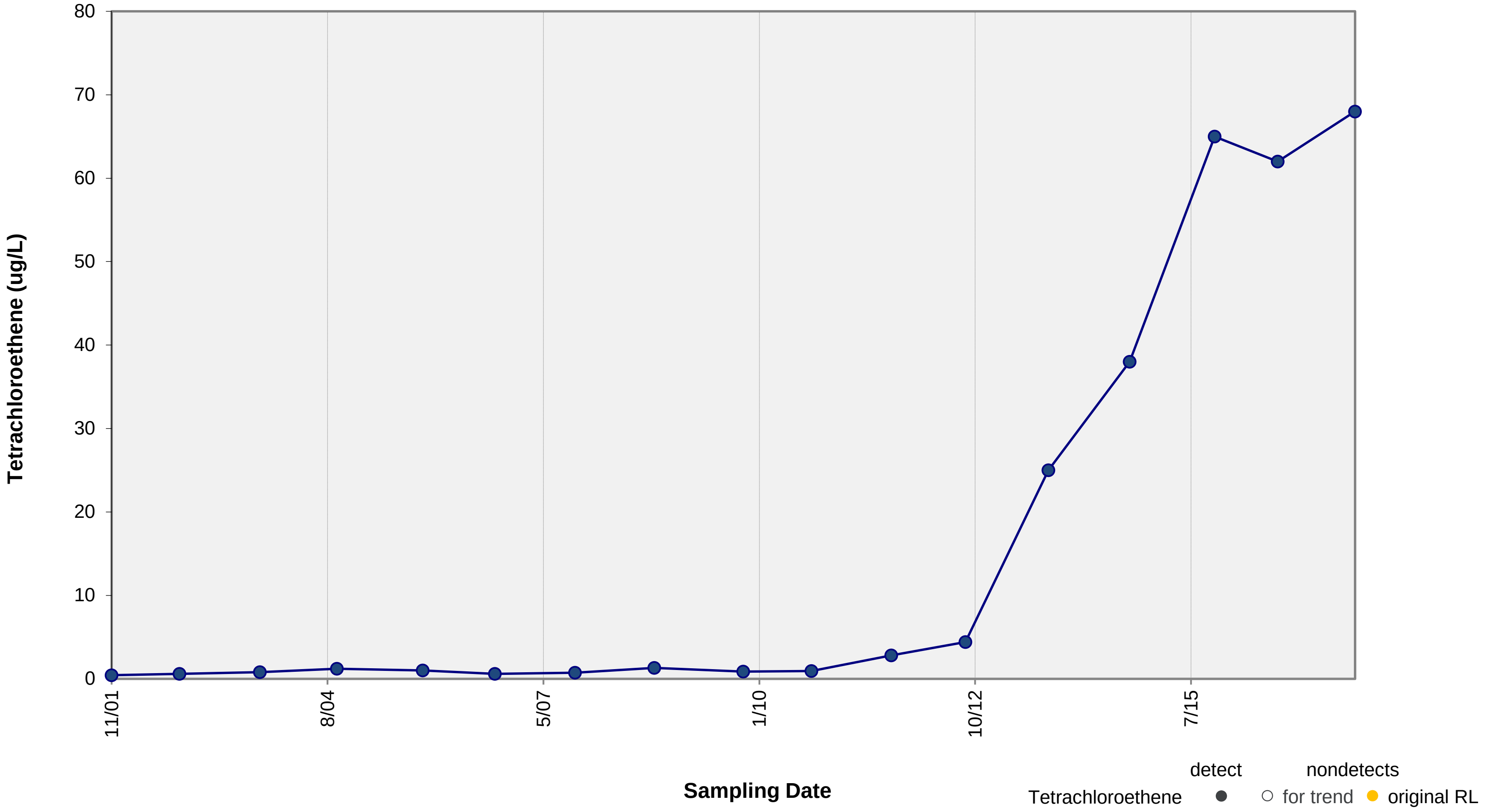
95% Confidence Interval = 1.9E-02 to 3.5E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Tetrachloroethene in Well HR-17

RACER Trust, Moraine, Ohio

Figure I-14



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 5.3E-03 ug/L Per Day

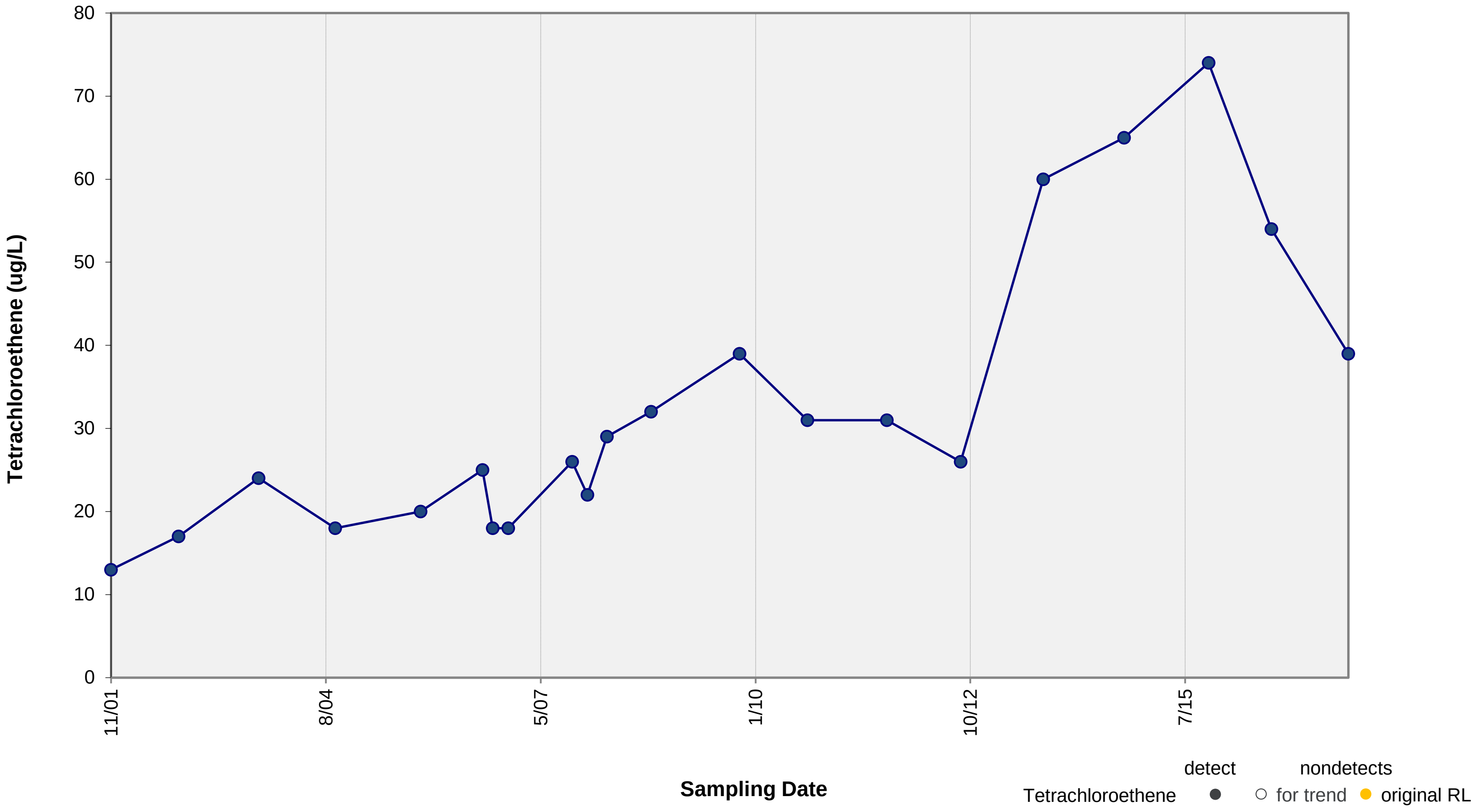
95% Confidence Interval = 6.7E-04 to 1.4E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Tetrachloroethene in Well W-3-S

RACER Trust, Moraine, Ohio

Figure I-15



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 7.3E-03 ug/L Per Day

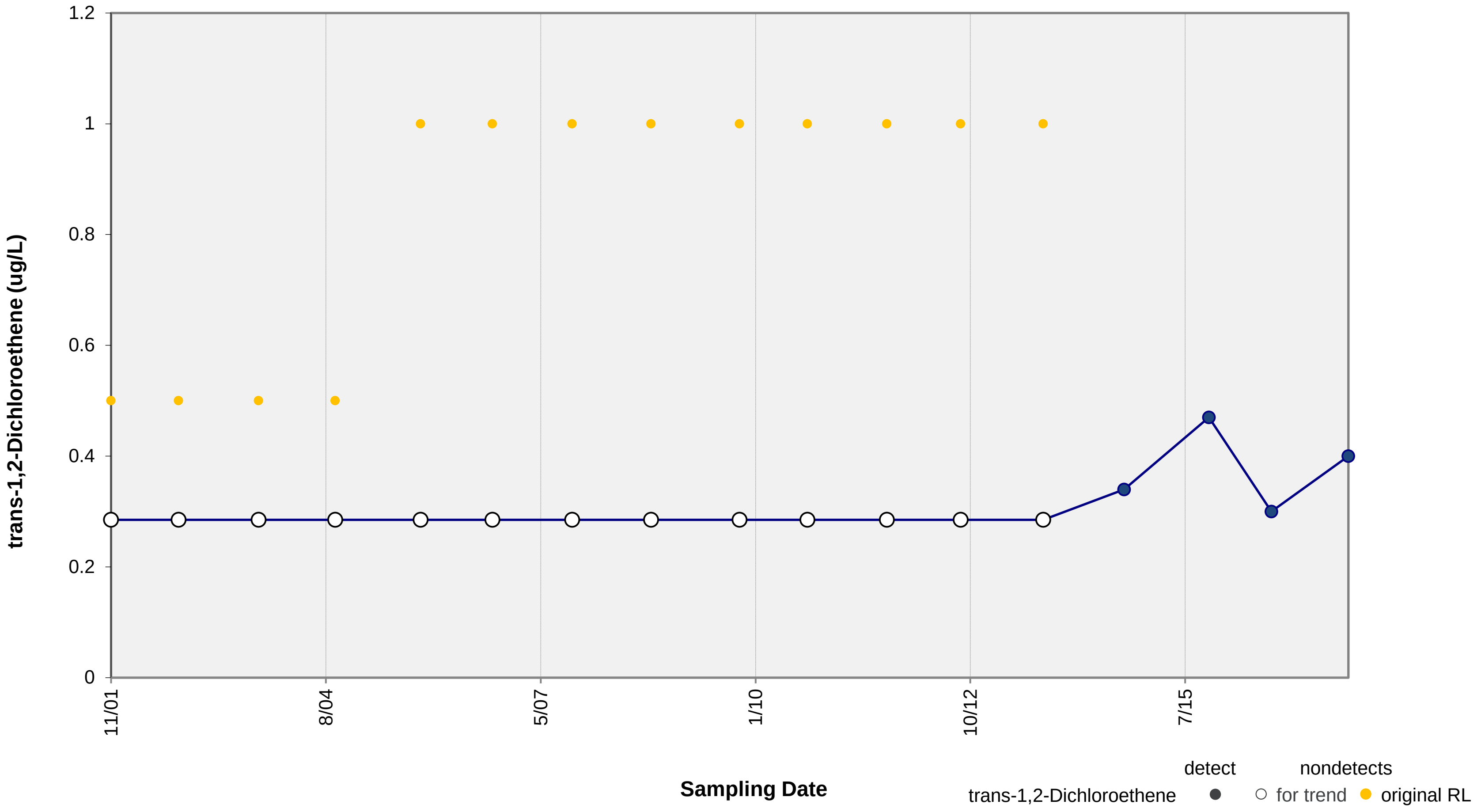
95% Confidence Interval = 4.3E-03 to 1.1E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Tetrachloroethene in Well W-4-S

RACER Trust, Moraine, Ohio

Figure I-16



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

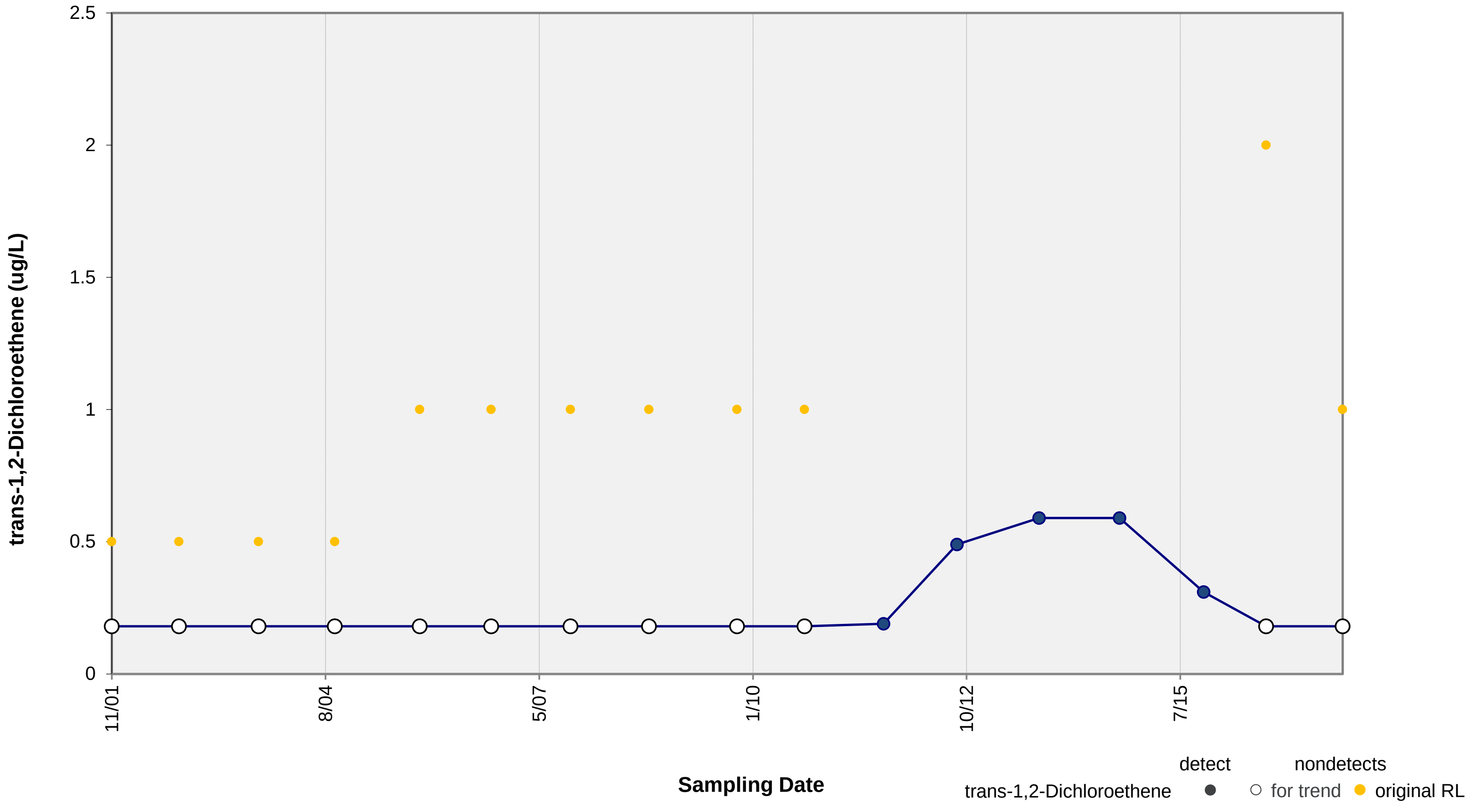
95% Confidence Interval = 0.0E+00 to 3.6E-06 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – trans-1,2-Dichloroethene in Well W-2-S

RACER Trust, Moraine, Ohio

Figure I-17



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.015 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**

Median Slope Estimate = 0.0E+00 ug/L Per Day

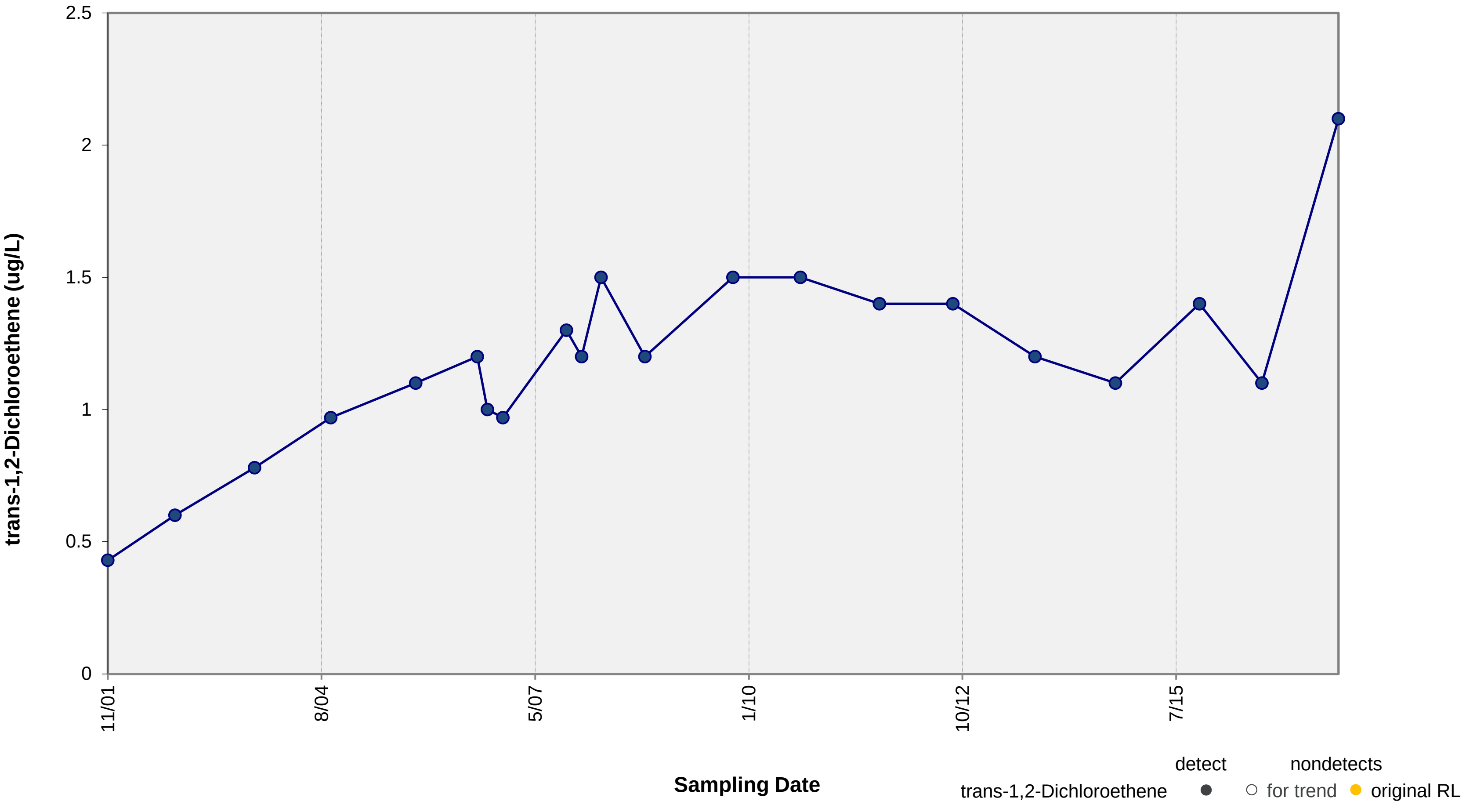
95% Confidence Interval = 0.0E+00 to 6.5E-06 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – trans-1,2-Dichloroethene in Well W-3-S

RACER Trust, Moraine, Ohio

Figure I-18



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.8E-04 ug/L Per Day

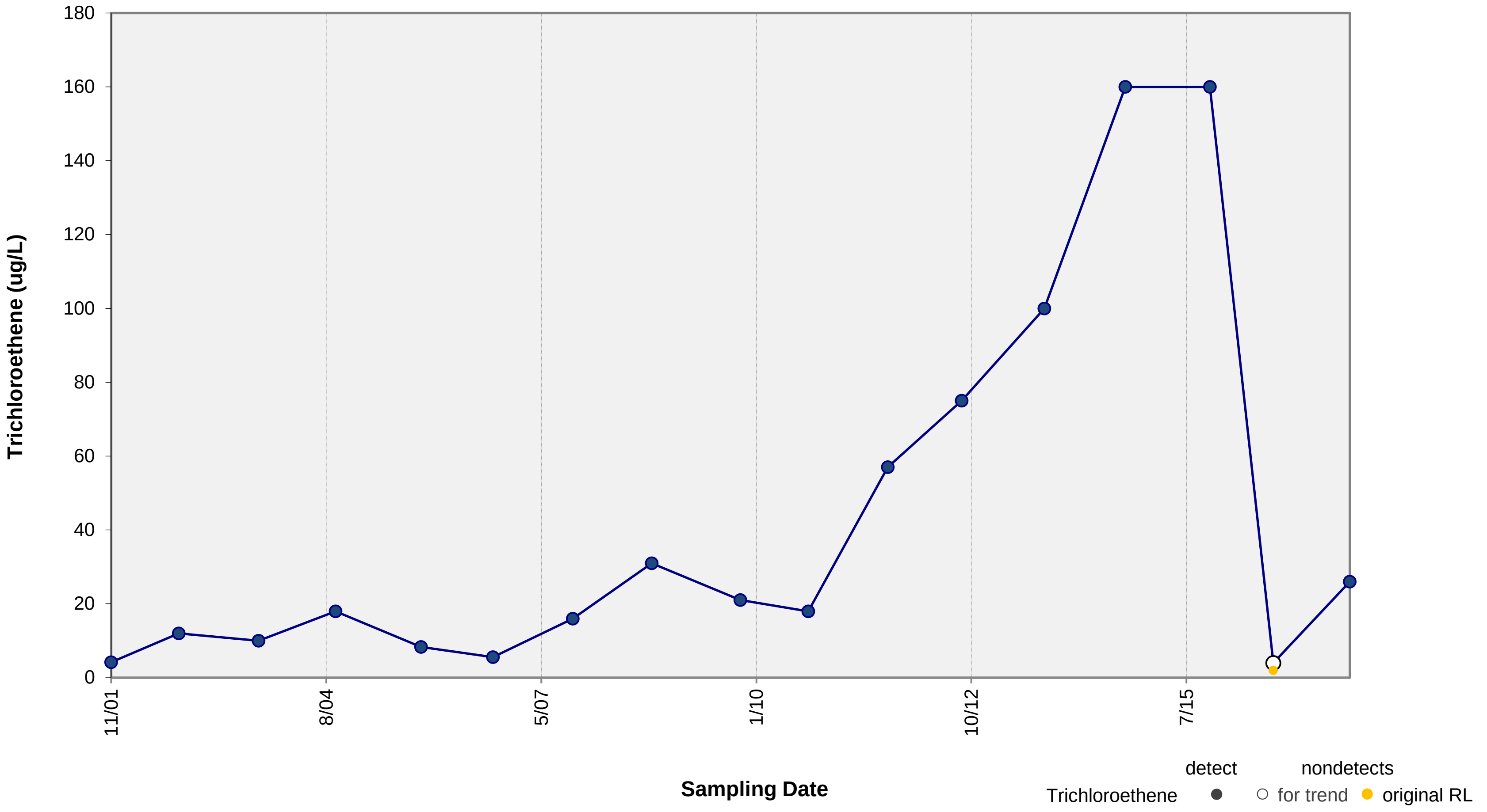
95% Confidence Interval = 6.8E-05 to 2.6E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – trans-1,2-Dichloroethene in Well W-4-S

RACER Trust, Moraine, Ohio

Figure I-19



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.003 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.2E-02 ug/L Per Day

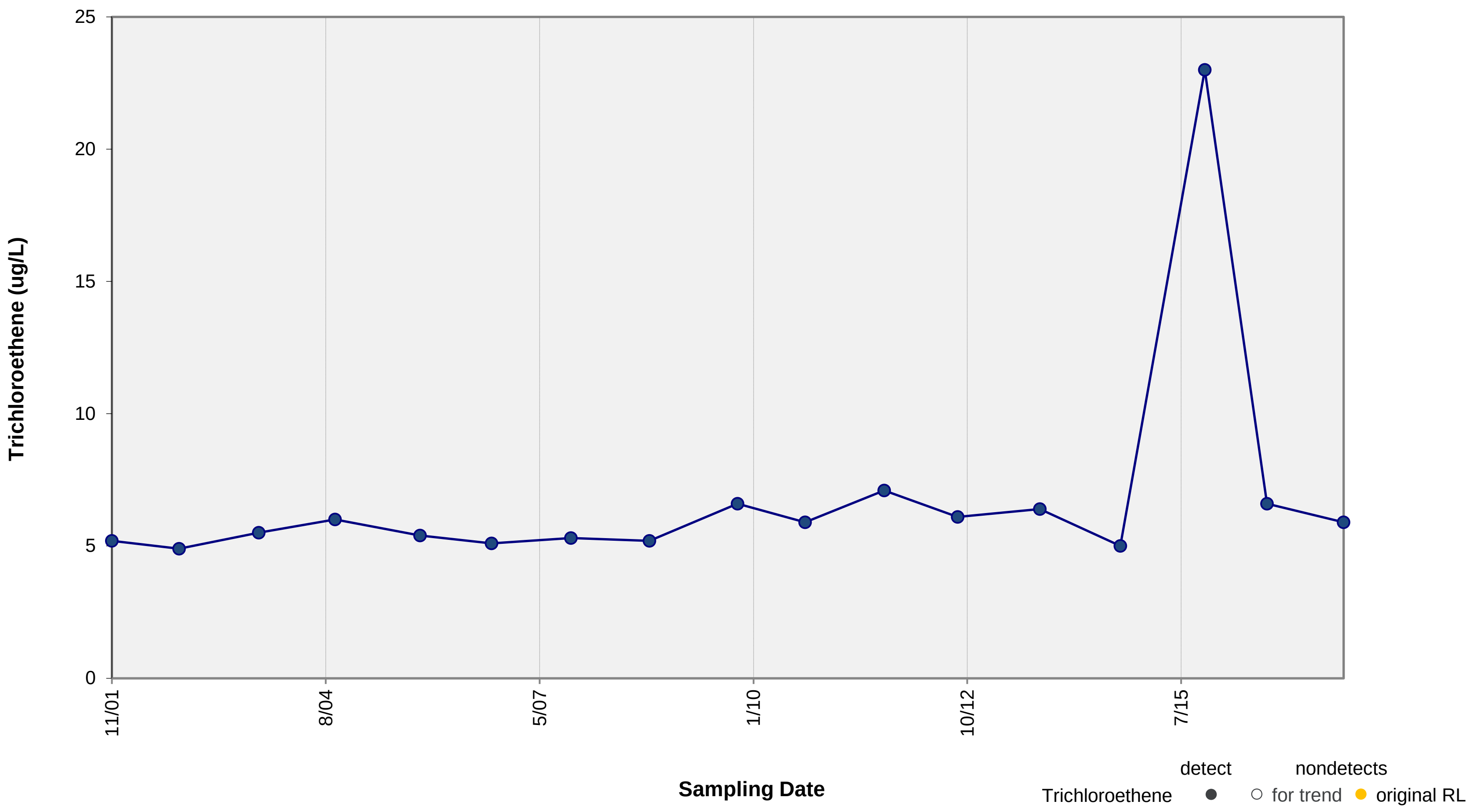
95% Confidence Interval = 2.8E-03 to 3.0E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Trichloroethene in Well HR-17

RACER Trust, Moraine, Ohio

Figure I-20



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = 0.019 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 2.5E-04 ug/L Per Day

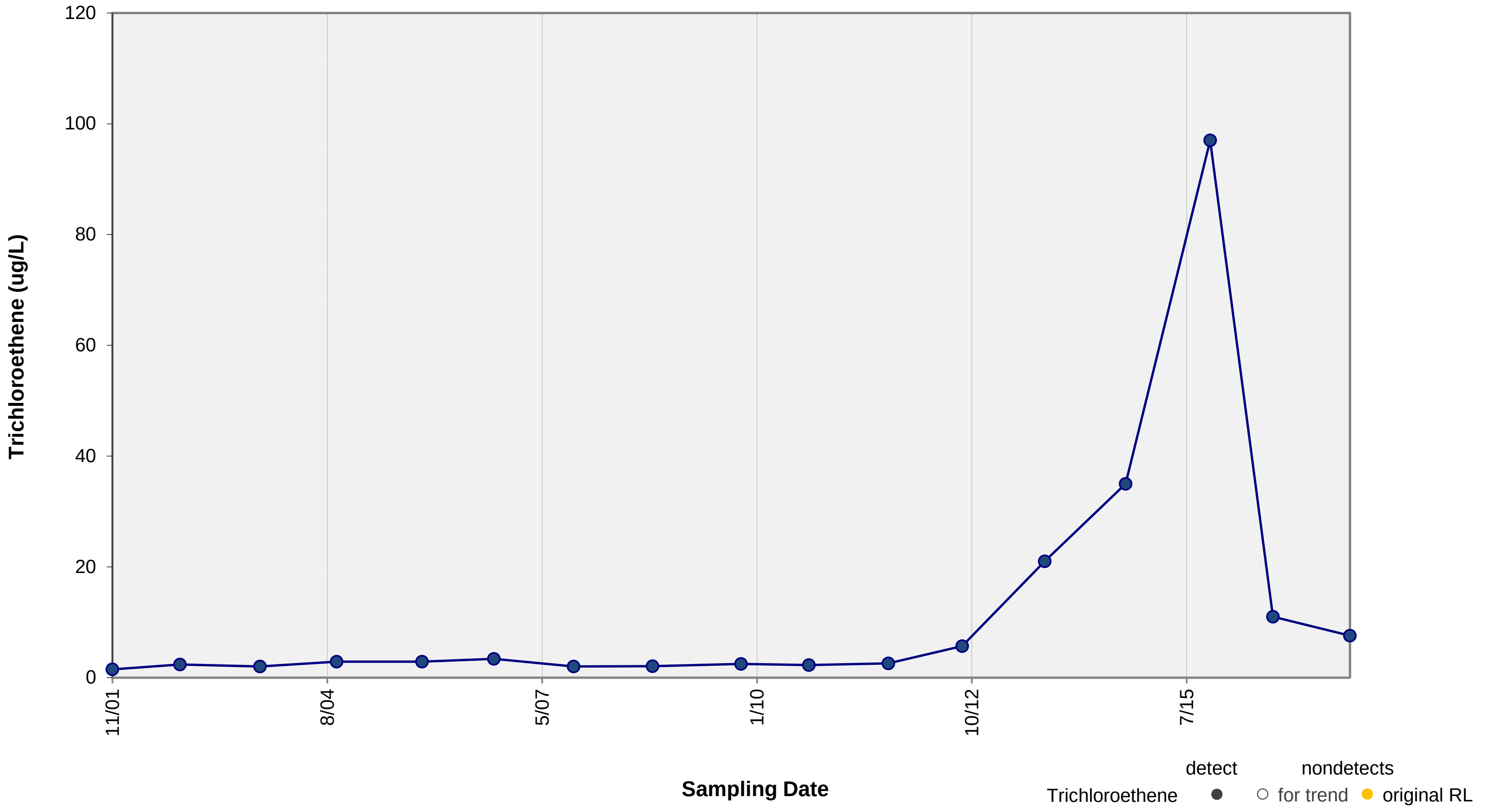
95% Confidence Interval = 6.1E-06 to 4.8E-04 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Trichloroethene in Well W-2-S

RACER Trust, Moraine, Ohio

Figure I-21



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 1.1E-03 ug/L Per Day

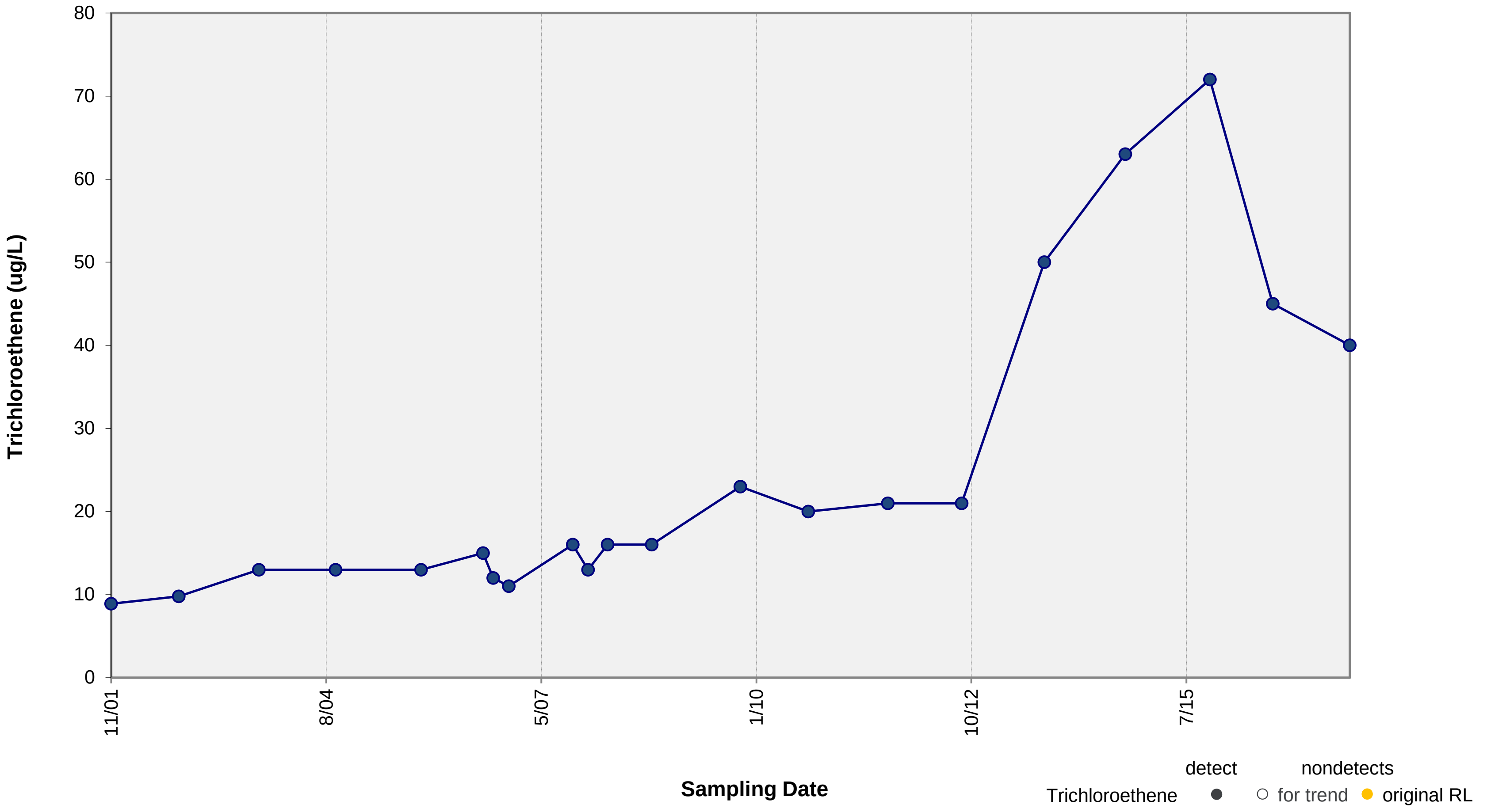
95% Confidence Interval = 3.6E-04 to 3.4E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Trichloroethene in Well W-3-S

RACER Trust, Moraine, Ohio

Figure I-22



Results of Mann-Kendall Test for Trend: **INCREASING TREND**

p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**

Median Slope Estimate = 5.4E-03 ug/L Per Day

95% Confidence Interval = 3.3E-03 to 8.9E-03 ug/L Per Day

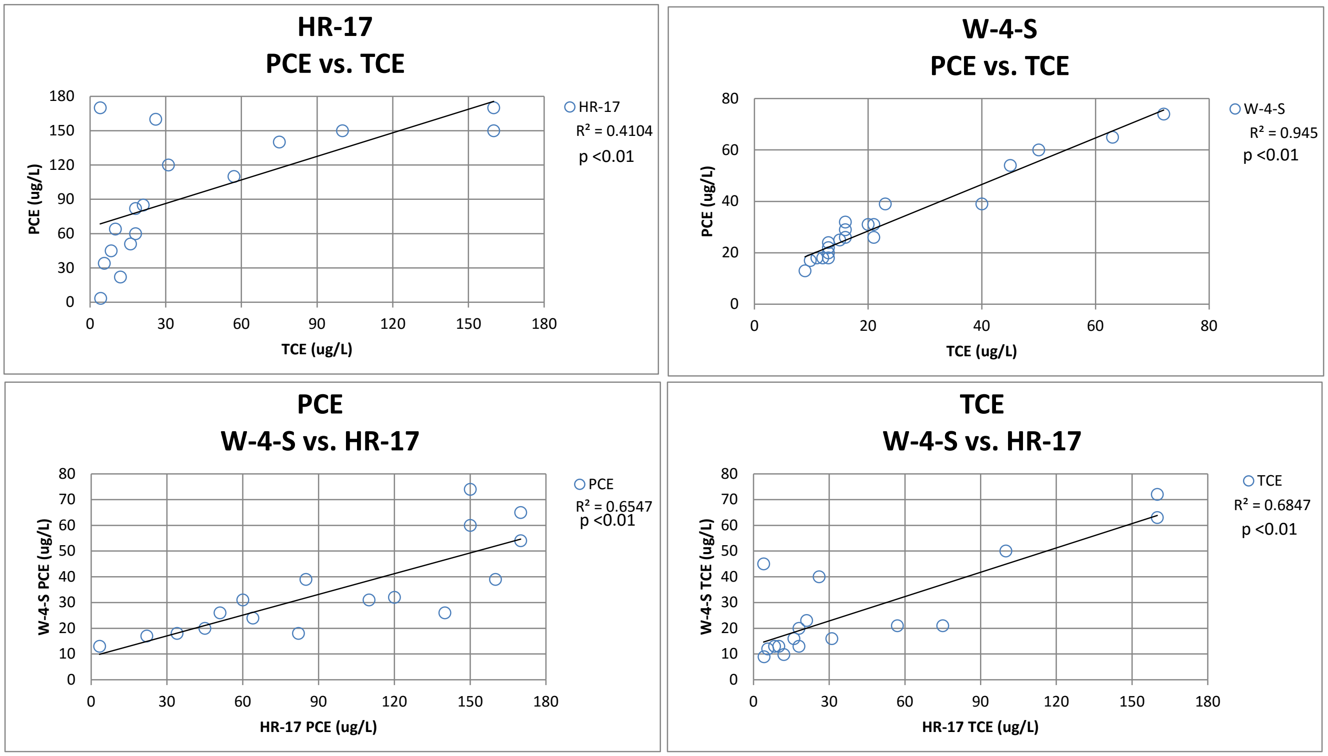
ARCADIS

Concentration vs. Time Plot – Trichloroethene in Well W-4-S

RACER Trust, Moraine, Ohio

Figure I-23

Figure I-24
South Settling Lagoon Upgradient vs Downgradient Wells



Notes:

All results are in micrograms per liter.

Coefficient of determination was calculated in Excel 2016.

Pearson product moment correlation significance was tested using SigmaPlot 13.

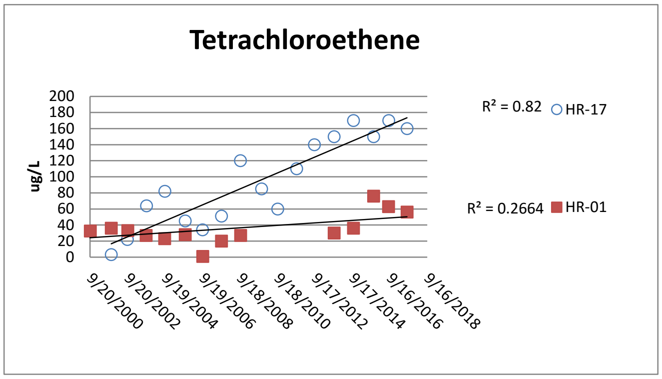
PCE = Tetrachloroethene

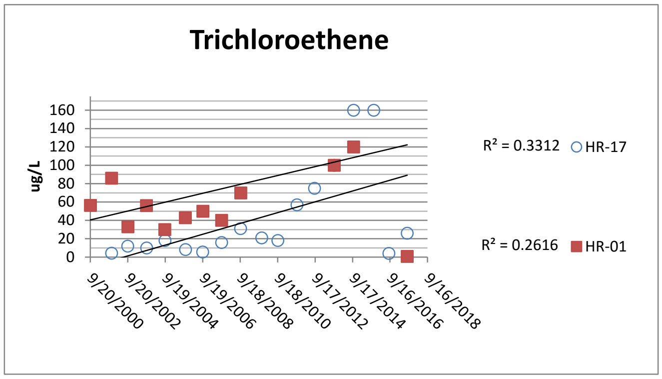
TCE = Trichloroethene

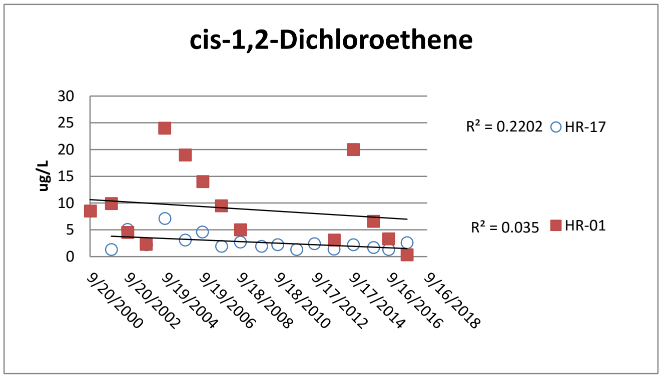
p = p-value for significance of the correlation

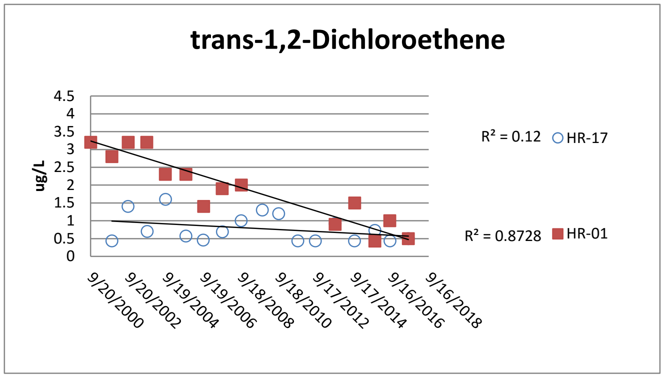
R^2 = coeffiecient of determination

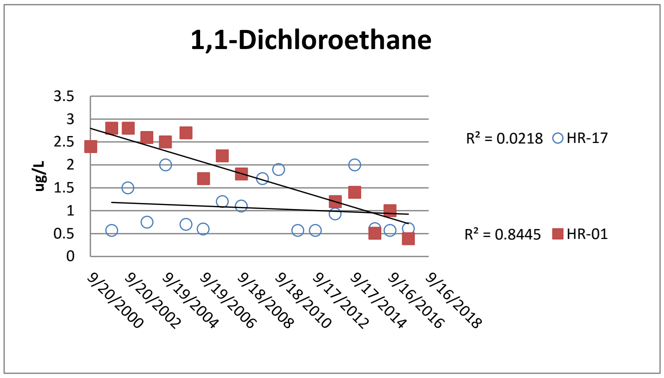
Figure I-25
South Settling Lagoon Upgradient Wells


Tetrachloroethene


Trichloroethene


cis-1,2-Dichloroethene


trans-1,2-Dichloroethene


1,1-Dichloroethane

Notes:

All results are in micrograms per liter.

Coefficient of determination was calculated in Excel 2016.

R^2 = coeffiecient of determination