Revitalizing Auto Communities Environmental Response Trust (RACER Trust)

SITE-WIDE GROUNDWATER MONITORING REPORT FOR 2016

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 23, 2017

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1 INTRODUCTION

This Site-Wide Groundwater Monitoring Report presents the groundwater monitoring activities completed in 2016 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 site-wide 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 Geraghty & Miller, Inc. 2001) and incorporated the Former Oil House Area interim measures (in-situ remediation of groundwater, Figure 3); the capture zone interim measures (pump and treat system for the upper aquifer and pumping for the lower aquifer, Figure 3); institutional actions (the Site will remain industrial and groundwater use will be restricted); and a site-wide groundwater monitoring program. The groundwater monitoring for the facilities was conducted in accordance with the approved Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002) and as modified in the Site-Wide Groundwater Monitoring Report for 2009 (Arcadis, Inc. 2010).

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 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.

Since 2014, property ownership has remained the same.

1.2 Groundwater Monitoring Program Objectives

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

1. Monitor groundwater quality upgradient and downgradient of the closed North and South Settling Lagoons
2. Monitor groundwater quality upgradient and downgradient of Landfills L1, L2, and L3
3. Monitor the effectiveness of the lower aquifer capture (DN-13) downgradient of property boundary
4. Monitor the effectiveness of corrective measures activities in in-situ reactive zones RZ-1, RZ-3, and RZ-4 east, to address chlorinated volatile organic compounds (VOCs) related to the Former Oil House Area
5. Monitor an appropriate list of wells once corrective measures objectives (CMOs) have been met, as discussed in the 2012 Corrective Measures Proposal (CMP) (Arcadis, Inc. 2012a), to verify that these objectives continue to be met without the active measures

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 only 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, only 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 2016. Carbon source solution injection volumes in 2016 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-2, 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

The capture zone interim measure for the upper aquifer consisted of groundwater extraction at the property boundary using well TW-2, treatment through an air stripper tower, and discharge through a National Pollution Discharge Elimination System (NPDES) permitted outfall to the south storm water retention basin ultimately discharging to the Great Miami River. Groundwater recovery from TW-2 began on January 31, 1996. On July 20, 2012, RACER Trust sent the U.S. EPA a letter indicating that operation of TW-2 would be discontinued. RACER Trust indicated operation of TW-2 was no longer necessary and was shut down on July 31, 2012 based on the performance of the upgradient in-situ reactive zone barrier and groundwater sampling data results collected monthly over 6 months. These results were presented in a letter from RACER Trust to the U.S. EPA on April 24, 2013 (Arcadis, Inc. 2013b).

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 2016. Samples at the DN-13 invert outfall and sampling port of the wellhead are collected and flow rate data is collected on a monthly basis as a requirement of the NPDES permit and is submitted to the Ohio Environmental Protection Agency (Ohio EPA). Well DN-13 was operational throughout 2016 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. The latest annual groundwater monitoring was completed in August 2016. The 1999 baseline through 2015 groundwater quality data for the site-specific VOC parameter list are reproduced in tables in Appendix B. For 2016, the site-specific VOC groundwater data is summarized in Table 3 of this report. This information is used to support the evaluation of the groundwater quality of source areas, the effectiveness of the on-going interim measures (in-situ reactive zones and capture zones), monitoring the closed settling lagoons, and monitoring plume migration. Monitoring for 1,4-dioxane was also completed in August 2016. The 2014 through 2016 groundwater 1,4-dioxane concentration data is summarized in Table 4. A summary of the activities and methodologies completed in 2016 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) and Section 5.0 of the Site-Wide Groundwater Monitoring Report for 2015 (Arcadis, Inc. 2016) was implemented during 2016. The following sections summarize collection of the annual groundwater elevation measurements, monthly groundwater monitoring, and annual site-wide groundwater monitoring.

2.1.1 Groundwater Elevation Monitoring

Groundwater levels were measured on September 13 and 14, 2016. 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, one lower aquifer well (MT596M) located east of the former Moraine Assembly and Engine plants, and four 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.

2.1.2 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 September 11, 2012. 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. 2013b), 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 the site-wide monitoring since TW-2 system shutdown. A discussion of the 2016 monitoring well data from GM-6 is provided in Section 2.2.3.1.3.

Table 5 summarizes the VOC results for the monthly DN-13 effluent sampling during 2016. The analyses were conducted in accordance with methods specified in the NPDES Permit 1IC00008*KD.

2.1.3 Site-Wide Groundwater Monitoring

In 2016, the following changes from the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002) were made, as recommended in the Site-Wide Groundwater Monitoring Report for 2015 (Arcadis Inc. 2016):

- Upper aquifer monitoring wells HR-1, HR-16, and GM-63 were sampled to support the evaluation of VOC concentrations in proximity to the closed South Settling Lagoon.
- Upper aquifer monitoring wells HR-8 and HR-9 were not sampled as they were inaccessible. These wells were replaced by sampling upper aquifer well W-1-N.
- Upper aquifer monitoring well GM-31 was not sampled due to access restrictions associated with working near an active railroad.
- Lower aquifer monitoring well HR-10 was not sampled as it was not accessible. This well was replaced by sampling lower aquifer well RMW-88.
- Due to the depths, lower aquifer monitoring wells GM-40 and GM-42 were not sampled and were replaced by sampling lower aquifer monitoring wells RMW-86 and RMW-87. Lower aquifer monitoring wells RMW-86 and RMW-87 are shallower and better positioned to monitor lower aquifer plume migration.
- Lower aquifer monitoring well RMW-85 was sampled due to its proximity to the former Process Sump Area.
- Upper aquifer monitoring wells HR-1, GM-63, and HR-16 were sampled due to increased concentrations at wells HR-17 and W-4-S that were not attributed to the closed South Settling Lagoon.
- Upper aquifer monitoring wells GM-30, GM-51, and HR-3 were sampled in 2016 to monitor for increasing chlorinated VOC concentrations.
- Upper aquifer monitoring wells RMW-89 (installed in 2014), RMW-90 (installed in 2014), and GM-28R (installed in 2015) were included in the 2016 site-wide groundwater event.

For a summary of the site-wide monitoring well sampling program, see Table 21 of the Site-Wide Groundwater Monitoring Report for 2009 (Arcadis, Inc. 2010). A summary of the 2016 annual sampling event, including the number of monitoring wells and analytical parameters, is presented on Table 1. Well construction data for the wells used in the site-wide program are presented in Table 6.

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 C). 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 RCRA Facility Investigation (RFI) Work Plan and the RFI Quality Assurance Project Plan (Geraghty & Miller, Inc. 1997a) and as presented in the draft Amended Quality Assurance Project Plan (Arcadis, Inc. 2011). Field parameter data for the site-wide groundwater monitoring event are presented in Appendix C. Analytical results are presented and discussed in Section 2.2.3.

2.1.4 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 and to evaluate 1,4-dioxane at the Site. These results are summarized in Appendices B and D.

Select groundwater samples from upper aquifer monitoring wells collected during the site-wide 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 site-wide assessment of current groundwater conditions, 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 September 13 and 14, 2016, as part of the site-wide groundwater monitoring. The groundwater level measurement data are presented on Table 7.

2.2.1.1 Upper Aquifer

Depth-to-water data from upper aquifer wells were collected on September 13 and 14, 2016. A contour map of the potentiometric surface was manually drawn for the upper aquifer (Figure 8). Groundwater flow for the upper aquifer is generally from northeast to southwest. A comparison of the September 2016 general groundwater flow conditions to the historical groundwater flow conditions documented in the annual groundwater monitoring reports for the upper aquifer post-2001 indicates a similar flow direction across the Site.

During the site-wide gauging event, 0.31 feet of light non-aqueous phase liquid (LNAPL) was detected in fire well FW-1A. The well is operated by Fuyao for the facility's fire suppression system. The well pump uses Iso-150 gear oil, and the LNAPL observed in the fire well appeared to be gear oil. The presence of LNAPL in the fire well appears to be the result of a pump malfunction. The issue was communicated to Fuyao on September 15, 2017. Fuyao indicated that they repaired the pump and removed the LNAPL which reportedly addressed the issue.

Table 8 presents the 2016 monthly precipitation totals, recorded by the National Weather Service, and the deviation from calculated average amounts. The 2016 annual total precipitation recorded at the Dayton, Ohio monitoring station was 35.78 inches, which was 1.97 inches below average. Precipitation amounts reported for the months of January, April, May, June, July, October, and November were below normal, while precipitation amounts for the other months were above normal.

Horizontal hydraulic gradient values within the upper aquifer in 2016, ranged from 1.7×10^{-4} feet per foot (ft/ft) to 5.6×10^{-4} ft/ft (Table 9). The average horizontal hydraulic gradient, based on the well pairs presented in Table 9, was 3.8×10^{-4} ft/ft for the upper aquifer.

2.2.1.2 Lower Aquifer

Depth-to-water data from lower aquifer wells were collected on September 13 and 14, 2016. A contour map of the potentiometric surface was manually drawn for the lower aquifer (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. A comparison of the September 2016 general groundwater flow conditions to the historical groundwater flow conditions documented in the annual groundwater monitoring reports for the lower aquifer post-2001 indicates a similar flow direction across the Site.

Horizontal hydraulic gradients in the lower aquifer in 2016 ranged in magnitude from 3.8×10^{-4} ft/ft to 5.1×10^{-4} ft/ft (Table 9). Overall, an average hydraulic gradient of 4.8×10^{-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 September 13 and 14, 2016. A total of 12 pairs of upper and lower aquifer wells were used to calculate the vertical hydraulic gradients upgradient, on-site, off-site, and downgradient (Table 10). 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 2.3 x 10^{-2} ft/ft downward to 2.3 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 upgradient, 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 on a site-wide basis for the presence of the site-specific list of VOCs. Table 3 presents the results for the site-wide groundwater sampling event completed in 2016 for the upper and lower aquifers. The 2016 groundwater analytical results for PCE, TCE, cis-1,2-DCE, and vinyl chloride are shown as pie graphs on Figures 10 and 11, for the upper and lower aquifers, respectively. The pie graphs represent molar concentrations (micromoles per liter) for these four CVOCs with the size of each pie representing the order of magnitude based on the total concentration (micrograms per liter [µg/L]). The 1999 baseline through 2015 groundwater quality data for the site-specific VOC parameter list are provided in tables in Appendix B.

The upper aquifer groundwater results are presented in Sections 2.2.3.1 and 2.2.3.2 and were evaluated based on groundwater quality at the upgradient plume contributions, source areas (Former Oil House Area and former Process Sump Area), in relation to current interim measures (reactive zones), upgradient/downgradient of closed settling lagoons, and off-site. The lower aquifer groundwater results are presented in Sections 2.2.3.3 and 2.2.3.4 and were evaluated based on groundwater quality at the upgradient plume contributions, source areas, other on-site areas, and off-site.

2.2.3.1 Upper Aquifer Groundwater Quality

Upper aquifer groundwater quality is discussed in the following sections by Site area. The groundwater data were also posted on the upper aquifer isoconcentration maps to graphically show the concentration distribution in relation to Maximum Contaminant Levels (MCLs) and interim measures. The isoconcentration maps are provided in Appendix E for PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,1-DCE, and total VOCs and are also discussed in the following sections.

2.2.3.1.1 Upgradient Contributions

Upgradient monitoring well W-1-N was sampled in 2016. Concentrations in W-1-N were below detection levels for all constituents, except for low detections of 1,1-DCA and cis-1,2-DCE at 4.8 µg/L and 0.36 J[1] µg/L, respectively. Upgradient monitoring well GM-24 was also sampled in 2016 with the following constituents detected: 1,1,1-TCA (10 µg/L), 1,1-DCA (0.84 J µg/L), benzene (1.5 µg/L), cis-1,2-DCE (1.2 µg/L), toluene (0.94 J µg/L), and TCE (4.5 µg/L).

The detected VOCs are consistent with historical values for upgradient groundwater quality as indicated in the Description of Current Conditions (DOCC) (Geraghty & Miller, Inc. 1991 and 1997b) and RFI Reports (Arcadis Geraghty & Miller, Inc. 2000a and 2000b) for the former Moraine Facilities (including the 1999 baseline sampling results) and are similar to detected compounds downgradient at the Site. These data confirm that upgradient sources of VOCs not related to former GM Corporation operations continue to exist in the local area and are contributing to groundwater quality on-site.

2.2.3.1.2 Source Areas

As discussed in the CMP, the groundwater source areas include the Former Oil House Area and the former Process Sump Area (Arcadis, Inc. 2012a). To evaluate the source areas of CVOCs at the Site, seven upper aquifer monitoring wells (GM-23, GM-59, GM-60, GM-74S, GM-75S, RMW-89, and RMW-90) were sampled in 2016. Monitoring well GM-23 is located in the Former Oil House Area and is screened above the upper clay till. Monitoring wells GM-59, GM-60, and GM-74S are located in the former Vehicle Distribution Center/former Moraine Engine building footprint. Monitoring well GM-59 is screened above the upper clay till, and monitoring wells GM-60 and GM-74S are screened above the regional clay till. Monitoring well GM-75S is located in the southwest corner of the former Moraine Assembly building in the former Process Sump Area and is screened at the regional clay till. Monitoring wells RMW-89 and RMW-90 are located in the vicinity of the former Process Sump Area and are screened above regional clay till. The following is a summary of the groundwater VOC analytical results for the source area wells:

- Monitoring well GM-23 is within the zone of influence of current interim measure (RZ-1) and the groundwater concentration trends are presented in Figure 12. A comparison between historical VOC concentrations detected at monitoring well GM-23 to 2016 VOC concentrations is discussed in Section 2.2.3.1.3.
- Monitoring wells GM-59, GM-60, GM-74S, GM-75S, RMW-89, and RMW-90 are located in the vicinity of the former Process Sump Area and are currently not addressed by ongoing interim measures; however, this area was evaluated in the CMP and subsequent former Process Sump Area investigations in 2014 and 2015 (Arcadis, Inc. 2012a, RACER Trust 2015, and RACER Trust 2016). The following is a summary of the groundwater analytical results for the wells located in the former Process Sump Area:

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[1] A "J" qualifier indicates the concentration is an estimated concentration.

- PCE concentrations in monitoring well GM-59 reached a peak of 1,000 µg/L in 2013 and have decreased to 280 µg/L in 2016. The TCE concentration decreased from 1,100 µg/L in 2013 to 170 µg/L in 2016. Concentrations of cis-1,2-DCE have remained relatively low since a detection of 41 µg/L in 2008. The cis-1,2-DCE concentration in monitoring well GM-59 was 2.6 µg/L in 2016. The other site-specific VOCs were below reporting limits in monitoring well GM-59 in 2016.
- Concentrations of PCE in monitoring well GM-60 reached a peak of 1,100 J µg/L in 2009. Since 2009, PCE concentrations in monitoring well GM-60 have remained relatively consistent, with a concentration of 530 µg/L in 2016. Concentrations of TCE in monitoring well GM-60 decreased from 1,400 µg/L in 2014 to 700 µg/L in 2016. Concentrations of cis-1,2-DCE decreased from 96 µg/L in 2014 to 12 µg/L in 2016. The other site-specific CVOCs were detected at relatively low concentrations or below reporting limits.
- Concentrations of PCE in monitoring well GM-74S reached a peak of 200 J µg/L in 2010. The PCE concentration in monitoring well GM-74S was 69 µg/L in 2016. Concentrations of TCE in monitoring well GM-74S decreased from 83 µg/L in 2007 to 14 K[2] µg/L in 2016. The other site-specific VOCs were below reporting limits.
- Concentrations of PCE in monitoring well GM-75S have remained consistent since sampling was initiated in 2007 with a concentration of 520 µg/L in 2016. The concentration of TCE also remained stable (68 µg/L in 2015 and 68 µg/L in 2016). The other site-specific VOCs were below reporting limits in monitoring well GM-75S in 2016.
- Monitoring wells RMW-89 and RMW-90 were sampled for the first time in 2015. In 2016, PCE and TCE were detected in monitoring well RMW-89 at concentrations of 61 µg/L and 21 µg/L, respectively. TCE was detected in monitoring well RMW-90 at a concentration of 55 µg/L. The other site-specific VOCs in RMW-89 and RMW-90 were detected at relatively low concentrations or below reporting limits.

2.2.3.1.3 Interim Measures Performance Results

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 2016, 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 12 (RZ-1), Figure 13 (RZ-3 East), Figure 14 (RZ-3 West), and Figure 15 (RZ-4 East).

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[2] A “K” qualifier indicates the concentration was positively identified; however, the associated numerical value is an estimated concentration only and the reported value may be biased high.

RZ-1

In-situ reactive zone 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). Five upper aquifer wells (GM-23, GM-28R [replacement for GM-28], GM-29, GM-30, and HR-3) are used to monitor the groundwater quality to evaluate the effectiveness of the reactive zone (Figure 12).

- PCE concentrations at monitoring well GM-23 have decreased from 15,000 µg/L in 2001 to 8.0 µg/L in 2016. TCE concentrations have generally decreased from 2,200 µg/L in 2001 to 7.6 µg/L in 2016. Concentrations of cis-1,2-DCE have decreased from 19,000 µg/L in 2005 to 530 µg/L in 2016. Vinyl chloride concentrations increased to a concentration of 4,100 µg/L in 2006 and subsequently, have decreased to a current concentration of 280 µg/L in 2016. Concentrations of trans-1,2-DCE were relatively low prior to initiating introductions in 2000. Concentrations peaked in 2006 at 270 J µg/L and have decreased to 18 µg/L in 2016.
- 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 µg/L in 2000. In 2011, the vinyl chloride concentration in monitoring well GM-28 was 0.57 J µg/L. Site-specific VOCs were detected at relatively low concentrations or below reporting limits in monitoring well GM-28R in 2016.
- 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 13 µg/L and 360 µg/L in 2016, respectively. A peak concentration of cis-1,2-DCE (2,871 µg/L) was noted in 2000, and concentrations have decreased to 470 µg/L in 2016. Concentrations of vinyl chloride have fluctuated since introductions began in 2000 but have decreased since 2005, with a concentration of 42 µg/L in 2016.
- Concentrations of site-specific VOCs in monitoring well GM-30 have been generally decreasing since the well was installed in 1999. Benzene (8.9 µg/L) was the only site-specific VOC detected above the MCL in this well in 2016.
- Concentrations of cis-1,2-DCE (93 µg/L), TCE (200 µg/L), and vinyl chloride (4.2 µg/L) in monitoring well HR-3 were relatively consistent to 2015. Concentrations of the other site-specific VOCs were relatively low-level or non-detect and consistent with the previous sampling events.

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 13).

- 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, except for 2008 when PCE was detected at a concentration of 0.56 J µg/L. Concentrations of TCE in well GM-21 peaked in 2002 at 230 µg/L and have decreased to below reporting limits in 2016. Concentrations of cis-1,2-DCE have fluctuated since a peak concentration of 100 µg/L in 2003 to below reporting limits in 2016. The maximum vinyl chloride concentration in monitoring well GM-21 (19 µg/L) was observed in 2008 and has decreased to below reporting limits in 2016. The other site-specific VOCs were below reporting limits in monitoring well GM-21 in 2016.

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 14). Note that data from monitoring wells GM-6 and GM-8, along with downgradient monitoring well GM-17, were also utilized to support the shutdown of TW-2 as discussed in Section 2.1.2.

- 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 81.4 µg/L in 1999 to below reporting limits in 2016. Concentrations of TCE have decreased from 78.2 µg/L in 1999 to below reporting limits in 2016. Concentrations of cis-1,2-DCE have decreased from 52.9 µg/L in 1999 to 0.29 J µg/L in 2016. Concentrations of vinyl chloride have decreased from 12 µg/L in 2002 to below reporting limits in 2016. The other site-specific VOCs were below reporting limits in monitoring well GM-6 in 2016.
- 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 2016. The other site-specific VOCs were below reporting limits in monitoring well GM-8 in 2016.

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 15).

- Concentrations of PCE and TCE have been low or below reporting limits since 2007. Concentrations of cis-1,2-DCE have been low or below reporting limits since 2007, with a concentration of 44 µg/L in 2016. Concentrations of vinyl chloride reached a peak concentration of 17 µg/L in 2013 and have decreased to 4.6 µg/L in 2016. Concentrations of the other site-specific VOCs were relatively low or below reporting limits and consistent with the previous sampling events.

2.2.3.1.4 Closed Settling Lagoon Monitoring Results

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-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 for both the site-wide groundwater monitoring and post-closure monitoring programs.

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 2016.
- Concentrations of PCE and TCE in monitoring well W-3-N have been generally decreasing since peak values in 2001 at 9.0 µg/L and 2.1 µg/L, respectively. Current concentrations of PCE and TCE are below reporting limits. Cis-1,2-DCE had a peak concentration of 291 µg/L in 1999 and has been generally decreasing to a current concentration of 22 µg/L in 2016. Vinyl chloride had a peak concentration of 24 µg/L in 2000 and has a current concentration of 1.9 µg/L in 2016.
- Concentrations of PCE and vinyl chloride in monitoring well W-4-N have been low or below reporting limits since 1999. TCE had a peak concentration of 15 µg/L in 2009 and has remained relatively consistent, with a concentration of 10 µg/L in 2016. Concentrations of cis-1,2-DCE has also remained relatively consistent with a concentration of 9.5 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Closed South Settling Lagoon

- Concentrations of site-specific VOCs continue to be detected at relatively low concentrations or below reporting limits in monitoring well HR-16 in 2016.
- Concentrations of PCE in monitoring well HR-17 have been relatively consistent since 2011 with a concentration of 170 µg/L in 2016. Concentrations of cis-1,2-DCE peaked at 7.1 µg/L in 2004 and have decreased to below reporting limits in 2016. Concentrations of the other site-specific VOCs were below reporting limits in monitoring well HR-17 in 2016.
- 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 µg/L in 2015 and has decreased to 6.6 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- The PCE concentration in monitoring well W-3-S (62 µg/L) in 2016 is similar to the peak concentration of 65 µg/L in 2015. The TCE concentration has decreased from the peak concentration of 97 µg/L in 2015 to 11 µg/L in 2016. 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 54 µg/L in 2016. Concentrations of TCE have fluctuated since 1999, with a concentration of 45 µg/L in 2016. Concentrations of cis-1,2-DCE have remained relatively consistent since 1999, with a

concentration of 12 µg/L in 2016. 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.

2.2.3.1.5 Plume Migration

The upper aquifer plume migration from the source areas (Former Oil House Area and former Process Sump Area) is monitored downgradient on-site, at the property boundary, and downgradient off-site.

Downgradient On-Site

Monitoring wells GM-35 and GM-43 were sampled to monitor the plume between the source area and property boundary (Figure 3).

- PCE concentrations in monitoring well GM-35 have varied, with a concentration of 27 J µg/L in 2016. TCE concentrations have also varied, with a concentration of 120 µg/L in 2016. Cis-1,2-DCE concentrations have been generally decreasing since a peak concentration of 300 µg/L in 2003 to 120 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- PCE concentrations in monitoring well GM-43 have been generally consistent since 2004, with a concentration of 41 µg/L in 2016. TCE concentrations have been generally increasing since 2004, with a concentration of 260 µg/L in 2016. Concentrations of cis-1,2-DCE have decreased from a peak concentration of 220 µg/L in 2010 to 11 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Monitoring wells HR-1, HR-2, and HR-7 are west to southwest (side-gradient to downgradient) of the Former Oil House Area and south of Landfills L2 and L3 (Figure 3). These wells are also used to monitor the plume migration on-site. Monitoring well HR-2 is part of the annual program to monitor groundwater concentrations south of Landfills L2 and L3. Monitoring well HR-7 is located downgradient of the closed North Settling Lagoon. Monitoring well HR-7 is also located on the western most portion of the former Building 14 property and was added to the site-wide annual program at request of the U.S. EPA (BOW Environmental Solutions, Inc. 2010).

- Concentrations of PCE in monitoring well HR-1 have been variable, with a concentration of 63 µg/L in 2016. Concentrations of TCE have been generally increasing since 2004, with a concentration of 190 µg/L in 2016. Concentrations of cis-1,2-DCE have been generally decreasing since a peak concentration of 24 µg/L in 2004 to a concentration of 3.3 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- Concentrations of PCE, TCE, cis-1,2-DCE, and vinyl chloride in monitoring well HR-2 have been low or below the reporting limit since 1999. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- Concentrations of PCE, cis-1,2-DCE, and vinyl chloride in monitoring well HR-7 have been low or below the reporting limits since 1999. Concentrations of TCE have slightly decreased from 9.8 µg/L in 1999 to 7.0 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Property Boundary

Monitoring wells GM-2, GM-6, and GM-8, along with inactive extraction well TW-2, are located at the southwestern most property boundary (Landfill L1), downgradient of the Former Oil House Area and RZ-3 West (Figure 3). These wells are used to monitor the groundwater quality at the property boundary. Monitoring wells GM-6 and GM-8 are used to monitor the performance of RZ-3 West and are discussed in Section 2.2.3.1.3.

- Concentrations of PCE in monitoring well GM-2 are similar to the peak concentration of 8.7 µg/L in 2002, with a concentration of 8.5 µg/L in 2016. Concentrations of TCE have generally decreased from 82.8 µg/L in 2000 to 6.3 µg/L in 2016. Concentrations of cis-1,2-DCE have fluctuated since a peak concentration of 39.2 µg/L in 2000. The concentration of cis-1,2-DCE was 8.9 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- Since 2012, PCE, TCE, cis-1,2-DCE, and vinyl chloride in inactive extraction well TW-2 have been detected at relatively low concentrations or below their respective reporting limits. In 2016, site-specific VOCs in well TW-2 were below the reporting limits.

Downgradient Off-Site

Monitoring wells GM-16, GM-47, GM-50, GM-51, and GM-63 are located west or southwest of Landfill L1 and south of the closed South Settling Lagoon. Monitoring wells GM-47 and GM-50 are paired upper aquifer wells. Monitoring well GM-47 is screened just above the regional clay till, and monitoring well GM-50 is screened near the water table. These wells are used to monitor plume migration south of in-situ reactive zones RZ-4 East and RZ-3 West, within the Riverview Plat neighborhood (northwest of the intersection of Main Street and Dryden Road - Figure 3).

- Concentrations of PCE and TCE in monitoring well GM-16 have generally decreased from concentrations of 110 µg/L and 75 µg/L, respectively, in 2010 to concentrations of 23 µg/L and 5.7 µg/L, respectively, in 2016. Cis-1,2-DCE concentrations have fluctuated, with a peak concentration of 43 µg/L in 2007 and a concentration of 7.4 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- Concentrations of PCE and TCE in monitoring well GM-47 have generally decreased from 78 µg/L and 50 µg/L, respectively, in 2006 to 39 µg/L and 4.4 µg/L, respectively, in 2016. Concentrations of cis-1,2-DCE have fluctuated, with a peak concentration of 170 µg/L in 2007 and a concentration of 38 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- PCE concentrations in monitoring well GM-50 have generally decreased since 2006, with a peak concentration of 180 µg/L in 2006 and a concentration of 14 µg/L in 2016. Concentrations of TCE have decreased since the peak concentration of 140 µg/L was observed in 2010, with a current concentration of 4.1 µg/L in 2016. Cis-1,2-DCE concentrations have fluctuated since 2006, with a peak concentration of 130 µg/L in 2007 and a concentration of 5.1 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- Concentrations of PCE in monitoring well GM-51 have been generally increasing since 2006 to peak concentrations of 63 µg/L in 2015. However, the concentration of PCE in 2016 was 6.5 µg/L, which is consistent with historical concentrations. The TCE concentration of 33 µg/L in 2016 is consistent with

previous monitoring events. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

- Concentrations of PCE have been generally decreasing in monitoring well GM-63 since a peak concentration of 160 µg/L in 2006 to a concentration of 38 µg/L in 2016. Concentrations of TCE have been decreasing since a peak concentration of 140 µg/L in 2010 to a concentration of 5.0 µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Additional off-site wells further delineate downgradient concentrations east and west of the Great Miami River (GM-26, GM-52, GM-55, GM-65S, GM-78, GM-79, and GM-80). PCE was detected in each of these monitoring wells, and concentrations ranged from 1.3 µg/L (GM-26) to 30 µg/L (GM-52) in 2016. TCE was detected in monitoring wells GM-79 (36 µg/L) and GM-80 (12 µg/L) in 2016. TCE was not detected above the reporting limits in monitoring wells GM-26, GM-52, GM-55, GM-65S, and GM-78 in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

2.2.3.2 Upper Aquifer Plume Distribution and MCL Comparison

At the request of the U.S. EPA, upper aquifer plume distribution is shown on constituent-specific isoconcentration maps in Appendix E. Isoconcentration maps were completed for PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,1-DCE, and total site-specific VOCs (Figures E-1 through E-6). The concentrations for the isoconcentration maps posted reflect 2016 groundwater sampling data, 2013 annual groundwater sampling data (applicable wells for 5-year event), and maximum interval concentrations for vertical aquifer profiling (VAP) groundwater samples. The isoconcentration contour interpretations account for an understanding of the CSM (i.e. groundwater flow and interim measure operation). Non-detect concentrations were accounted for by contouring using half the reporting limit posted.

Concentrations of PCE were detected above the MCL (5 µg/L) in 22 wells (GM-23, GM-59, GM-60, GM-74S, GM-75S, GM-29, HR-17, W-3-S, W-4-S, HR-1, GM-43, GM-35, GM-2, GM-16, GM-47, GM-50, GM-51, GM-52, GM-63, GM-78, GM-80, and RMW-89). The data for these wells are provided in Table 3 and shown on Figure E-1 in bold. Concentrations above the MCL ranged from 6.2 µg/L in GM-78 to 530 µg/L in GM-60. The data indicate that PCE is present across the Site from the former Process Sump Area, extending southwest off-site. The plume is partially bifurcated downgradient by in-situ reactive zones RZ-3 and RZ-4 East.

Concentrations of TCE were detected above the MCL (5 µg/L) in 22 wells (GM-23, GM-59, GM-60, GM-74S, GM-75S, GM-29, HR-3, W-4-N, W-2-S, W-3-S, W-4-S, HR-1, GM-43, GM-35, HR-7, GM-2, GM-16, GM-51, GM-79, GM-80, RMW-89, and RMW-90). The data for these wells are provided in Table 3 and shown on Figure E-2 in bold. Concentrations above the MCL ranged from 5.7 µg/L in GM-16 to 700 µg/L in GM-60. The data also indicate that TCE is present across the Site from both source areas (Former Oil House Area and former Process Sump Area), extending southwest off-site. The plume is partially bifurcated downgradient by in-situ reactive zones RZ-3 and RZ-4 East.

Concentrations of cis-1,2-DCE were detected above the MCL (70 µg/L) in four wells (GM-23, GM-29, HR-3, and GM-35). The data for these wells are provided in Table 3 and shown on Figure E-3 in bold. Concentrations above the MCL ranged from 93 µg/L in HR-3 to 530 µg/L in GM-23. As shown in Figure E-3, the data indicate that cis-1,2-DCE is present at the highest concentrations in active in-situ reactive zone RZ-1, with maximum concentrations exceeding 150 µg/L. The data also indicate that cis-1,2-DCE is present at the former Process Sump Area and in active in-situ reactive zones RZ-3 and RZ-4 East. The cis-1,2-DCE concentrations that are above the MCL are within the Site property boundary.

Concentrations of vinyl chloride were detected above the MCL (2 µg/L) in four wells (GM-19S, GM-23, GM-29, and HR-3). The data for these wells are provided in Table 3 and shown on Figure H-4 in bold. Concentrations above the MCL ranged from 4.2J µg/L to 200 µg/L in wells HR-3 and GM-23, respectively. As shown on Figure E-4, the data indicate that vinyl chloride is present at the highest concentrations near active in-situ reactive zone RZ-1. The data also indicate that vinyl chloride is present at the former Process Sump Area and in active in-situ reactive zones RZ-3 and RZ-4 East. The vinyl chloride concentrations that are above the MCL are within the Site property boundary.

Concentrations of 1,1-DCE were not detected above the MCL (7 µg/L) in the groundwater samples collected from the upper aquifer during the 2016 annual groundwater monitoring event. However, a plume map (Figure E-5) was generated using the 2016 and 2013 annual groundwater monitoring data (applicable wells for 5-year event), maximum interval concentrations for VAP groundwater samples, and accounted for interim measures.

The isoconcentration map for total site-specific VOCs in the upper aquifer is shown on Figure E-6. The data indicate that site-specific VOCs are present at the highest concentrations in the former Process Sump Area, extending southwest off-site. The plume is partially bifurcated downgradient by active in-situ reactive zones RZ-3 and RZ-4 East. The data also indicate that total site-specific VOCs are present on the northern portion of the Site and off-site to the north.

2.2.3.3 Lower Aquifer Groundwater Quality

Lower aquifer groundwater quality is discussed in the following sections by Site area. The groundwater data were also posted on the lower aquifer Site map to produce isoconcentration maps to graphically show the concentration distribution in relation to MCLs and interim measures. These isoconcentration maps are provided in Appendix E for PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,1-DCE, and total site-specific VOCs and are also discussed in the following sections.

2.2.3.3.1 Upgradient Contributions

In 2016, the upgradient lower aquifer monitoring wells HR-12 and RMW-88 were part of the site-wide monitoring program (Figure 7) and exhibited the presence of site-specific VOCs. The detected site-specific VOCs in monitoring wells HR-12 and RMW-88 included 1,1-DCA, cis-1,2-DCE, and trans-1,2-DCE, suggesting that upgradient releases of chlorinated VOCs have occurred. The detected VOCs in monitoring wells HR-12 and RMW-88 are consistent with past concentrations. The types of VOCs detected upgradient are similar to those detected further downgradient beneath the Site, indicating that total site-specific VOC concentrations detected beneath the Site include both upgradient (off-site) and on-site contributions.

2.2.3.3.2 On-Site Groundwater Quality near Upper Aquifer Source Areas

On-site lower aquifer monitoring wells located near the upper aquifer source areas (Former Oil House Area and former Process Sump Area) that were part of the site-wide monitoring program in 2016 included monitoring wells GM-54, GM-68D, GM-75D, and RMW-85 (Figure 7). In 2016, PCE concentrations ranged from 31 µg/L in monitoring well GM-68D to 200 µg/L in monitoring well GM-75D. Concentrations of TCE ranged from 1.6 J µg/L in monitoring well GM-54 to 220 µg/L in monitoring well GM-75D. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

2.2.3.3.3 Other On-Site Areas

Other on-site lower aquifer monitoring wells HR-15 (located south of the closed North Settling Lagoon), RMW-86 (located east of reactive zone RZ-4 East), RMW-87 (located west of former Delphi Thermal Building 14), and GM-19D (located south of reactive zone RZ-4 East) were sampled in 2016.

- Concentrations of site-specific VOCs in monitoring well HR-15 were detected at relatively low concentrations or below the reporting limits in 2016.
- Concentrations of PCE and TCE in monitoring well RMW-86 were 59 µg/L and 120 µg/L, respectively. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- The concentration of TCE detected in RMW-87 was 11 µg/L. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.
- The concentration of vinyl chloride in GM-19D was 6.2 J µg/L in 2016. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

2.2.3.3.4 Off-Site and Side-Gradient

Off-site and side-gradient wells sampled in 2016 included monitoring well GM-83D to the west and monitoring wells GM-84 and GM-77D to the east. The 2016 site-specific VOC concentrations were consistent with previous years. The only site-specific VOC detected in monitoring well GM-83D was vinyl chloride (3.1 µg/L). The only site-specific VOC detected in monitoring well GM-84 was TCE (4.7 µg/L). The only site-specific VOC detected in monitoring well GM-77D was PCE (17 µg/L).

2.2.3.3.5 Off-Site and Downgradient

The off-site groundwater quality downgradient was evaluated with lower aquifer wells GM-11, GM-15, and GM-20D in 2016. Concentrations of PCE ranged from below reporting limits in monitoring well GM-15 to 1.3 µg/L in monitoring well GM-20D. Concentrations of TCE ranged from 1.5 µg/L in monitoring well GM-20D to 12 µg/L in monitoring well GM-11. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits.

Off-site wells further downgradient that were sampled in 2016 included monitoring well GM-9 and extraction well DN-13. TCE was detected in monitoring well GM-9 and DN-13 at concentrations of 13 µg/L and 8.1 µg/L, respectively. The other site-specific VOCs were detected at relatively low concentrations or below reporting limits. Groundwater capture in the vicinity of these lower aquifer wells by extraction well DN-13 is discussed in Section 3.2.

2.2.3.4 Lower Aquifer Plume Distribution and MCL Comparison

At the request of the U.S. EPA, lower aquifer plume distribution is shown on constituent-specific isoconcentration maps in Appendix E. Isoconcentration maps were completed for the lower aquifer for PCE, TCE, cis-1,2-DCE, vinyl chloride, 1,1-DCE, and total site-specific VOCs (Figures E-7 through E-12). The concentrations for the isoconcentration maps posted reflect monitoring well results for 2016, 2013 through 2015 , and pre-2013. In addition, maximum interval concentrations for VAP groundwater samples from 2011 through 2015 were included. The isoconcentration contour interpretations account for an understanding of the CSM (i.e. groundwater flow and interim measure operation). Non-detect concentrations were accounted for by contouring using half the reporting limit.

Concentrations of PCE were detected above the MCL (6 μg/L) in six wells (GM-54, GM-68D, GM-75D, RMW-85, RMW-86, and GM-77D). The data for these wells are provided in Table 3 and shown on Figure E-7 in bold. Detected concentrations above the MCL ranged from 17 μg/L in GM-77D to 200 μg/L in GM-75D, respectively. The data indicate that PCE is present across the Site in the lower aquifer from the former Process Sump Area, extending south and off-site to the southeast and southwest.

Concentrations of TCE were detected above the MCL (5 ug/L) in eight wells (GM-75D, RMW-85, RMW-86, RMW-87, GM-15, GM-9, DN-13, and GM-11). The data for these wells are shown on Table 3 and Figure E-8 in bold. Detected concentrations above the MCL ranged from 6.3 ug/L in GM-15 to 220 ug/L in GM-75D. The data indicate that TCE is present across the Site from the former Process Sump Area, extending off-site to the south and southwest.

Concentrations of cis-1,2-DCE were not detected above the MCL (70 μg/L) in the groundwater samples collected from the upper aquifer during the 2016 annual groundwater monitoring event. However, a plume map (Figure E-9) was generated using the 2016 and 2013 annual groundwater monitoring data (applicable wells for 5-year event), maximum interval concentrations for VAP groundwater samples, and accounted for interim measures.

Concentrations of vinyl chloride were detected above the MCL (2 μg/L) in two wells (GM-19D and GM-83D). The data for these wells are provided in Table 3 and shown on Figure E-10 in bold. The concentrations above the MCL were 3.1 μg/L in GM-83D and 6.2 μg/L in GM-19D. The data indicate that the extent of vinyl chloride at concentrations above the MCL in the lower aquifer is limited.

Concentrations of 1,1-DCE were not detected above the MCL (7 μg/L) in the groundwater samples collected from the upper aquifer during the 2016 annual groundwater monitoring event. However, 1,1-DCE data is shown on Figure E-11 using the 2016 and 2013 annual groundwater monitoring data (applicable wells for 5-year event), and maximum interval concentrations for VAP groundwater samples.

The isoconcentration map for total site-specific VOCs in the lower aquifer is shown on Figure E-12. The data indicate that total site-specific VOCs are present at the highest concentrations in the former Process Sump Area, extending off-site to the north, southwest, and southeast.

2.2.3.5 1,4-Dioxane Groundwater Results

A total of 10 upper aquifer wells (GM-6, GM-8, GM-16, GM-21, GM-29, GM-35, GM-52, GM-60, GM-79, and GM-80) and nine lower aquifer wells (HR-12, GM-9, GM-11, GM-15, GM-75D, GM-83D, RMW-86, RMW-87, and RMW-88) were sampled for 1,4-dioxane analysis during the 2016 site-wide monitoring program. Concentrations of 1,4-dioxane in upper aquifer wells ranged from non-detect in monitoring well GM-80 to 340 µg/L in monitoring well GM-35. Concentrations of 1,4-dioxane in three of the 10 upper aquifer wells exceeded the U.S. EPA recommended action level of 4.6 µg/L. Concentrations of 1,4-dioxane in lower aquifer wells ranged from non-detect in monitoring well GM-11 to 68 µg/L in monitoring well HR-12. Concentrations of 1,4-dioxane in six of the nine lower aquifer wells exceeded the U.S. EPA recommended action level of 4.6 µg/L. In general, 1,4-dioxane concentrations in the upper and lower aquifer were similar to the previously collected data.

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.

- 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).
- Enhanced reductive dechlorination continued to achieve the desired reduction of chlorinated 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 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 7), site hydraulic gradients (horizontal [Tables 9 and 11] and vertical [Table 10]), 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 2016 was approximately 945 gallons per minute (gpm [1.36 MGD]), while the average period (daily) rate (total flow volume averaged over the entire year – including downtime) for 2016 was approximately 849 gpm (1.22 MGD). The average period extraction rate for DN-13 for September 2016 was approximately 931 gpm (1.34 MGD), which coincides with the annual groundwater elevation monitoring. Well DN-13 was operational throughout 2016 except for the periodic shutdowns related to power failures and for operation and maintenance activities detailed in Appendix F.

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 at the invert of the outfall and the sampling port of the DN-13 well head 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 Ohio EPA. Corrective actions, monitoring data, and operation and maintenance activities/actions for DN-13 are provided in Appendix F.

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 µg/L (Figure E-12 and Figure 16). 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 µg/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 7), 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 7). 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 16. 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 and are shown on Figure 17.

Horizontal hydraulic gradients were evaluated using 2016 groundwater elevation data. Results of the evaluation are presented, including the magnitude and direction, in Table 9 and on Figure 17. 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 10 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)**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 and outside the influence of DN-13 in 2016 is approximately 4.8×10^{-4} ft/ft (Table 9).

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)
2016 Minimum	260	4.8×10^{-4}	85	2,950	2	0.47/325
2016 Maximum (Conservative)	440	4.8×10^{-4}	85	2,950	2	0.79/550

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 0.47 and 0.79 MGD (325 and 550 gpm), respectively. Recall that the average period (daily) extraction rate for DN-13 for 2016 was calculated to be 1.22 MGD (849 gpm) while the period rate in September 2016 was 1.34 MGD (931 gpm). Compared to the estimated DN-13 groundwater flux/required pumping rates under both hydraulic conductivity conditions, the actual period extraction rates for 2016 exceed the maximum 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 E), 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 2016 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 G-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 G-2 of Appendix G. 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 G-1 through G-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. All 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.

The Mann-Kendall test was run to analyze total chlorinated VOC data following the method presented in Unified Guidance (U.S. EPA, 2009). Tests were run for three monitoring wells for two time periods, from 1999 to present and after July 2008 to represent the time during which Arcadis was in control of the DN-13 extraction well flow rate. For the full data set, no statistically significant increasing trends were identified for GM-9 or GM-15. The total chlorinated VOC data from GM-20D were found to be significantly decreasing. For the post-July 2008 dataset, no statistically significant increasing trend was identified in GM-9 and a statistically significant decreasing trend was identified in the data from GM-20D. However, an increasing trend was identified with the Mann-Kendall test for trends in GM-15. The increasing trend was not confirmed with the Sen's slope estimator, indicating that although concentrations may be increasing, the slope of the trend was not found to be significant. Therefore, the total chlorinated VOC concentrations in GM-15 are interpreted to be stable. Total chlorinated VOC concentrations at GM-15 ranged from 6.9 µg/L to 10.8 µg/L from 1999 to 2014, and in November 2015 and August 2016, total chlorinated VOCs were 17.34 µg/L and 18.04 µg/L respectively.

3.2.7 Interpreted Capture

The lines of evidence evaluated indicate that DN-13 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 2016 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 Mann-Kendall and Sen's slope estimator tests show that chlorinated VOC concentrations in the lower aquifer in the vicinity of DN-13 are decreasing or stable (based on the full and post-July 2008 datasets), thereby indicating effective plume containment/capture.

Based on these multiple lines of evidence, an interpreted capture zone was delineated and shows containment of the target capture zone on Figure 18. 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 2016 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 site-wide 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, this site-wide monitoring program was developed to meet the objectives of RCRA corrective action and the post-closure groundwater monitoring requirements for the closed lagoons. The site-wide 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. The approach proposed in the Site-Wide Groundwater Monitoring Plan for this assessment includes, as an initial approach, the application of linear regression to determine if the concentration data for chlorinated 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 described in Appendix H.

The monitoring wells identified in the Site-Wide Groundwater Monitoring Plan 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 wells GM-63, HR-1, and HR-16 were sampled to better characterize the increased concentrations at monitoring wells HR-17 and W-4-S. Data collected from monitoring well GM-83S in 2013 was also used for this evaluation.

4.2.3 Results

Data considered in the evaluation included results through the August 2016 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 sixteen[3] 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

[3] With the exception of W-4-S which contains 20 data points for each constituent.

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 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 H-1. A summary matrix of trend test results is presented in Table H-2. The data plots for key constituents are provided on Figure H-1 for the closed North Settling Lagoon (NSL) and Figure H-2 for the closed South Settling Lagoon (SSL) in Appendix H. 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 H-3 to H-22.

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 H-5 and H-6, 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 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 H-7), although the R^2 was less than 0.5 (0.42). Concentrations of cis-1,2-DCE and trans-1,2-DCE were an order of magnitude below maximum contaminant levels (MCL).

In the upgradient well HR-04, increasing trends were identified for 1,1,1-TCA and 1,1-DCA by the Mann-Kendall trend test (Figures H-3 and H-4 respectively), although the magnitude of these trends were not statistically significant using the Sen's slope estimator trend test and the R^2 was less than 0.5. Concentrations range from 0.17 to 2.0 µg/L for 1,1,1-TCA in HR-04 and are below the MCL of 200 µg/L.

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 8 µg/L).

- 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 indicates that.

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 K-2 and Figure K-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 140 to 170 µg/L which were above the MCL of 5 µg/L (Figure H-13). 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 µg/L and were above the MCL of 5 µg/L in four of the last five sampling events (Figure H-19).

- **W-2-S**. A statistically significant increasing trend for TCE was 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 5.0 to 23 µg/L which were above the MCL of 5 µg/L (Figure H-20).

- **W-3-S**. Statistically significant increasing trends for both cis-1,2-DCE and PCE were identified with both the Mann-Kendall and Sen's slope estimator trend tests, and the R^2 was greater than 0.5 for both. Concentrations for cis-1,2-DCE were an order of magnitude below the MCL (Figure H-11), and concentrations of PCE over the past five sampling events ranged from 4.4 to 62 µg/L and were above the MCL of 5 µg/L in four of these five sampling events (Figure H-14). A statistically significant increasing trend for TCE was 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 5.7 to 97 µg/L which were above the MCL of 5 µg/L (Figure H-21).

- **W-4-S**. A statistically significant increasing trend for 1,1-DCA, cis-1,2-DCE, PCE, and TCE 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 four constituents. Concentrations of cis-1,2-DCE were an order of magnitude below the MCL of 70 µg/L. Concentrations of PCE over the past five sampling events ranged from 26 to 74 µg/L which were above the MCL of 5 µg/L (Figure H-15). Concentrations of TCE over the past five sampling events ranged from 21 to 72 µg/L which were above the MCL of 5 µg/L (Figure H-22). A statistically significant increasing trend for trans-1,2-DCE was identified with both the Mann-Kendall and Sen's slope estimator trend tests, although the R^2 was less than 0.5, and concentrations were an order of magnitude below the MCL of 100 µg/L.

The detected concentrations for PCE and TCE in the upgradient monitoring well HR-17 in the 2015 sampling event were 150 μg/L and 160 μg/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 H-23). 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 210 μg/L in 2015 and at 190 μg/L in 2016. PCE was detected at 76 µg/L in 2015 and at 63 µg/L in 2016. Concentrations of PCE and TCE both show an increasing trend at HR-01 (Figure H-24). 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 site-wide report presents the groundwater monitoring activities completed in 2016 at the RACER Trust Moraine Facilities located in Moraine, Ohio. This sampling was conducted to meet the five objectives presented in Section 1.2. Compliance with these objectives is presented for the closed lagoons, interim measures, and on-going site-wide groundwater monitoring in the following sections.

5.1 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 2016 monitoring, no changes in the monitoring program for the closed lagoons are proposed.

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 2016 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 2016, the current pumping program at DN-13 will continue to be implemented and evaluated in 2017.

The current groundwater monitoring program includes an assessment of changes in site-specific VOCs in both the upper and lower aquifers at locations upgradient of the former Moraine Facilities, as well as on-site and downgradient of the former facilities. Data collected from upper and lower aquifer wells located upgradient of the former facilities confirms that upgradient sources of chlorinated VOCs, not related to former GM Corporation operations, persist in the local area. Other than upgradient contributions of chlorinated VOCs to on-site groundwater and areas evaluated as part of the former Process Sump Area source area, the monitoring data indicate a general site-wide decrease in chlorinated VOC concentrations since the baseline sampling event conducted in 1999 as a result of the interim measures. Chlorinated VOC concentrations remain above MCLs for off-site wells in the upper and lower aquifers. However, lower aquifer groundwater, downgradient beyond the property boundary, is captured by the lower aquifer capture zone well DN-13.

The overall decreasing concentrations in the wells downgradient of the Site since the interim measures were first implemented are likely attributable to the combined effects of interim measures that include pumping at TW-2 which began in January 1996 (inactive as of July 2012), pumping at DN-13, and ongoing ERD of the chlorinated VOCs. However, 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.

Based on the evaluation of the site-wide groundwater quality, both the amended in-situ treatment and hydraulic capture (lower aquifer) will continue until modifications are implemented for the final site-wide remedy proposed in the 2012 CMP (Arcadis, Inc. 2012a). A summary of the DN-13 operations and maintenance activities is provided in Appendix F.

5.3 Reassessment of Site-Wide Groundwater Monitoring Program

In accordance with the Site-Wide Groundwater Monitoring Plan (Arcadis G&M, Inc. 2002) with modifications from the Site-Wide Groundwater Monitoring Report for 2008 (Arcadis, Inc. 2009), groundwater monitoring was completed in 2016 to evaluate groundwater quality upgradient and downgradient of the closed lagoons and landfills, performance of the in-situ reactive zones, and performance of the capture zone. Based on the data collected during the 2016 monitoring period, the monitoring program has provided sufficient data for a comprehensive evaluation of the current corrective action objectives.

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TABLES

Table 1
Site-Wide Groundwater Monitoring Program for 2016
RACER Trust Moraine Facilities
Moraine, Ohio

2016 Site-Wide Annual Groundwater Sampling

Upper aquifer monitoring wells analyzed for the site-specific list of VOCs[1] and field parameters[2] in 2016. Biogeochemical parameters[3] and 1,4-dioxane[4] analyzed at select wells identified below:

W-1-N	HR-4	TW-2	GM-23[3]	GM-35[4]	GM-59[3]	GM-79[4]
W-2-N	HR-7	GM-2	GM-24	GM-43	GM-60[3][4]	GM-80[4]
W-3-N	HR-16	GM-6[4]	GM-26	GM-47	GM-63	RMW-89
W-4-N	HR-17	GM-8[3][4]	GM-28R[3]	GM-50	GM-65S	RMW-90
HR-1	W-2-S	GM-16[4]	GM-29[3][4]	GM-51	GM-74S	
HR-2	W-3-S	GM-19S[3]	GM-30	GM-52[4]	GM-75S[3]	
HR-3	W-4-S	GM-21[3][4]	GM-32[5]	GM-55	GM-78	

Lower aquifer monitoring wells sampled for the site-specific list of VOCs[1], 1,4-dioxane[4] and field parameters[2] in 2016:

HR-12[4]	GM-9[4]	GM-19D	GM-68D	GM-83D[4]	RMW-86[4]
HR-15	GM-11[4]	GM-20D	GM-75D[4]	GM-84	RMW-87[4]
DN-13	GM-15[4]	GM-54	GM-77D	RMW-85	RMW-88[4]

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
1,4-Dioxane	SW846 8260B SIM
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
Nitrate	MCAWW 300.0

NOTES:

1 - Site-specific list of VOCs for 2016 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 - Wells analyzed for 1,4-dioxane.

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

Table 2
Carbon Source Solution Introduction Volumes for 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #164(1)		Injection Event #165(2)		Injection Event #166(3)		Injection Event #167(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	15.10	400	14.30	500	29.40	600	15.80
RZ-1D	800	12.50	800	19.00	300	23.10	1000	27.00
RZ-1E	800	16.70	800	18.60	800	26.70	800	27.60
RZ-1F	800	17.40	800	17.00	800	25.80	800	25.00
RZ-1G	800	20.00	800	19.00	800	27.60	800	30.80
RZ-1H	800	9.90	800	18.60	800	16.70	800	15.70
RZ-1I	800	17.80	800	20.50	800	24.20	800	24.20
RZ-1J	800	20.00	800	17.40	800	21.60	800	25.00
RZ-1K	800	20.50	800	22.20	800	27.60	800	28.60
RZ-1L	800	20.50	800	22.90	800	25.80	800	29.60
RZ-1M	800	14.50	800	15.10	800	23.50	800	22.90
RZ-1N	800	14.00	800	15.70	800	17.00	800	24.20
RZ-1O	800	16.70	800	17.80	800	25.80	800	25.00
RZ-1P	800	20.00	800	22.90	800	22.90	800	28.60
RZ-1Q	800	13.80	800	17.80	800	23.50	800	25.00
RZ-1R	800	20.15	800	21.10	800	26.70	800	32.00
RZ-1S	800	19.00	800	18.60	800	27.60	800	26.70
RZ-1T	800	19.50	800	22.20	800	30.80	800	32.00
RZ-1U	800	19.00	800	22.20	800	32.00	800	30.80
Reactive Zone 1 Total Volume	15,200	NA	14,800	NA	14,400	NA	15,200	NA

NOTES:
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 #164 was completed on February 22nd-25th, March 1st, March 3rd, March 7th-11th, March 15th, March 17th-18th, March 21st-25th, and March 28th-31st.

(2) Injection Event #165 was completed on May 6th, May 10th-11th, May 13th, May 17th-18th, May 23rd, May 25th-27th, May 31st, June 13th, June 15th-16th, June 20th-24th, and June 27th-30th.

(3) Injection Event #166 was completed on August 12th, August 15th-18th, August 26th, August 29th-31st, September 7th-8th, September 12th, September 16th, September 23rd, and September 29th-30th.

(4) Injection Event #167 was completed on October 11th-13th, October 21st, October 24th, October 27th, November 4th, November 7th-11th, November 29-30th, December 2nd-3rd, December 6th-7th, December 12th-13th, December 17th, and December 27th-30th.

Table 2
Carbon Source Solution Introduction Volumes for 2016
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #164[1]		Injection Event #165[2]		Injection Event #166[3]		Injection Event #167[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	1600	19.10	1600	20.30	1600	20.10	1600	27.20
RZ-3B	1600	16.90	1600	21.10	1600	16.40	1600	31.40
RZ-3C	1600	19.10	1600	19.40	1600	15.00	1600	28.60
RZ-3D	800	11.80	800	11.30	800	7.30	800	10.10
RZ-3E	800	9.00	800	12.10	800	11.30	800	11.00
RZ-3F	800	12.90	800	8.60	800	10.30	1600	23.20
RZ-3G	800	11.90	800	11.90	800	9.10	1600	23.20
RZ-3H	1600	18.30	1600	19.80	1600	12.90	1600	23.50
RZ-3I	1600	14.40	1600	15.40	800	8.50	800	11.40
RZ-3J	1600	15.10	1600	15.90	800	10.30	1600	28.60
RZ-3K	1600	16.20	1600	20.60	800	7.50	1600	21.80
RZ-3L	1600	22.00	800	8.70	1600	14.40	1600	32.00
RZ-3M	1600	21.40	1600	23.50	1600	14.90	1600	32.00
RZ-3N	1600	21.10	1600	22.90	1600	15.00	1600	31.40
RZ-3O	1600	19.80	1600	20.30	1600	15.40	1600	29.70
RZ-3P	1600	15.60	1600	15.50	1600	11.60	1600	29.20
RZ-3Q	1600	19.50	1600	21.40	1600	32.00	1600	29.20
RZ-3R	1600	23.60	1600	23.20	1600	34.10	1600	30.30
RZ-3S	1600	19.30	1600	19.80	1600	32.10	1600	28.60
RZ-3T	1600	16.80	1600	16.00	1600	28.10	1600	26.90
RZ-3U	1600	20.30	1600	20.60	1600	30.80	1600	28.10

NOTES:
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 #164 was completed on February 22nd-25th, March 1st, March 3rd, March 7th-11th, March 15th, March 17th-18th, March 21st-25th, and March 28th-31st.

(2) Injection Event #165 was completed on May 6th, May 10th-11th, May 13th, May 17th-18th, May 23rd, May 25th-27th, May 31st, June 13th, June 15th-16th, June 20th-24th, and June 27th-30th.

(3) Injection Event #166 was completed on August 12th, August 15th-18th, August 26th, August 29th-31st, September 7th-8th, September 12th, September 16th, September 23rd, and September 29th-30th.

(4) Injection Event #167 was completed on October 11th-13th, October 21st, October 24th, October 27th, November 4th, November 7th-11th, November 29-30th, December 2nd-3rd, December 6th-7th, December 12th-13th, December 17th, and December 27th-30th.

Table 2
Carbon Source Solution Introduction Volumes for 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #164[1]		Injection Event #165[2]		Injection Event #166[3]		Injection Event #167[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	1600	18.40	1600	19.10	1600	30.80	1600	30.20
RZ-3W	1600	20.80	1600	21.70	1600	30.80	1600	26.30
RZ-3X	1600	18.00	1600	18.60	1600	28.60	1600	25.80
RZ-3Y	1600	19.60	1600	21.10	1600	33.40	1600	30.80
RZ-3Z	1600	18.20	1600	18.70	1600	30.80	1600	29.60
RZ-3AA	1600	16.90	1600	19.80	1600	30.80	1600	30.80
RZ-3BB	1600	17.10	1600	20.10	1600	30.20	1600	30.00
RZ-3CC	1600	19.60	1600	22.60	1600	31.40	1600	32.10
RZ-3DD	1600	20.00	1600	21.90	1600	30.20	1600	30.80
RZ-3GG	1600	18.80	1600	19.80	1600	30.80	1600	28.10
RZ-3HH	1600	17.50	1600	17.60	1600	28.60	1600	27.30
RZ-3II	1600	21.40	1600	21.40	1600	30.20	1600	29.10
RZ-3JJ	1600	18.50	1600	16.60	400	11.40	600	6.00
RZ-3KK	1600	16.10	1600	14.40	1200	23.40	1000	38.40
RZ-3RR	1600	12.20	800	11.60	1600	20.80	1600	22.40
RZ-3SS	800	11.40	800	10.50	1600	17.40	1600	18.50
RZ-3TT	800	9.10	800	7.80	1600	15.60	1600	16.10
RZ-3UU	400	5.60	400	5.30	800	10.40	1600	12.60
RZ-3VV	1200	10.00	800	7.30	1600	13.10	1600	15.40
Reactive Zone 3 Total Volume	57,600	NA	55,600	NA	56,000	NA	60,000	NA

NOTES:
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 #164 was completed on February 22nd-25th, March 1st, March 3rd, March 7th-11th, March 15th, March 17th-18th, March 21st-25th, and March 28th-31st.

(2) Injection Event #165 was completed on May 6th, May 10th-11th, May 13th, May 17th-18th, May 23rd, May 25th-27th, May 31st, June 13th, June 15th-16th, June 20th-24th, and June 27th-30th.

(3) Injection Event #166 was completed on August 12th, August 15th-18th, August 26th, August 29th-31st, September 7th-8th, September 12th, September 16th, September 23rd, and September 29th-30th.

(4) Injection Event #167 was completed on October 11th-13th, October 21st, October 24th, October 27th, November 4th, November 7th-11th, November 29-30th, December 2nd-3rd, December 6th-7th, December 12th-13th, December 17th, and December 27th-30th.

Table 2
Carbon Source Solution Introduction Volumes for 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Injection Well	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
	Injection Event #164(1)		Injection Event #165(2)		Injection Event #166(3)		Injection Event #167(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	3000	14.00	2200	14.30	3000	26.10	3000	27.30
RZ-4B	3000	15.20	3000	14.00	3000	26.80	3000	24.80
RZ-4C	3000	14.50	3000	15.00	3000	27.10	3000	27.50
RZ-4D	3000	18.00	3000	19.10	3000	26.10	3000	32.30
RZ-4E	3000	18.50	3000	19.00	3000	23.40	3000	32.30
RZ-4F	3000	16.40	3000	14.90	3000	29.00	3000	28.90
RZ-4G	3000	19.00	3000	18.70	3000	28.30	1700	22.30
RZ-4H	3000	19.00	3000	18.20	3000	31.40	2900	31.50
Reactive Zone 4 Total Volume	24,000	NA	23,200	NA	24,000	NA	22,600	NA
Quarterly Total Volumes	96,800	NA	93,600	NA	94,400	NA	97,800	NA

Annual Total Volume	382,600

NOTES:
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 #164 was completed on February 22nd-25th, March 1st, March 3rd, March 7th-11th, March 15th, March 17th-18th, March 21st-25th, and March 28th-31st.
(2) Injection Event #165 was completed on May 6th, May 10th-11th, May 13th, May 17th-18th, May 23rd, May 25th-27th, May 31st, June 13th, June 15th-16th, June 20th-24th, and June 27th-30th.
(3) Injection Event #166 was completed on August 12th, August 15th-18th, August 26th, August 29th-31st, September 7th-8th, September 12th, September 16th, September 23rd, and September 29th-30th.
(4) Injection Event #167 was completed on October 11th-13th, October 21st, October 24th, October 27th, November 4th, November 7th-11th, November 29-30th, December 2nd-3rd, December 6th-7th, December 12th-13th, December 17th, and December 27th-30th.

Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

			Upgradient Contributions		Source Areas						
	Units	**MCL[1]**	**W-1-N 8/18/2016 Upper Aquifer**	**GM-24 8/16/2016 Upper Aquifer**	**GM-23 8/22/2016 Upper Aquifer**	**GM-59 8/23/2016 Upper Aquifer**	**GM-60 8/23/2016 Upper Aquifer**	**GM-74S 8/23/2016 Upper Aquifer**	**GM-75S 8/24/2016 Upper Aquifer**	**RMW-89 8/24/2016 Upper Aquifer**	**RMW-90 8/17/2016 Upper Aquifer**
Site-Specific Volatile Organic Compounds											
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	10	< 2.0 U	< 2.0 U	1.1 J	< 2.0 U	< 2.0 U	< 2.0 U	12
1,1-Dichloroethane	ug/L		4.8	0.84 J	8.6	< 2.0 U	0.69 J	< 2.0 U	< 2.0 U	< 2.0 U	8.4
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	1.1 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	0.96 J
Benzene	ug/L	5	< 1.0 U	1.5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	0.36 J	1.2	**530**	2.6	12	< 2.0 U	< 2.0 U	4.4	31
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	**8.0**	**280**	**530**	**69**	**520**	**61**	1.5
Toluene	ug/L	1,000	< 1.0 U	0.94 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	18	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	0.99 J
Trichloroethene	ug/L	5	< 1.0 U	4.5	**7.6**	**170**	**700**	**14 K**	**68**	**21**	**55**
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	**280**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	0.81 J
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		5.2	19	853	453	1,244	83	588	86	111

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
[1] - A MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2016 data are shown in Appendix D.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
MCL - Maximum Contaminant Level.
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.
U - Constituent not detected above laboratory reporting limit shown.
UB - Analyte considered non-detect at listed value due to associated blank contamination.

Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

			Downgradient Reactive Zone Performance Wells								Closed North Settling Lagoon Monitoring Results			
	Units	MCL[1]	GM-28R 8/22/2016 Upper Aquifer	GM-29 8/22/2016 Upper Aquifer	GM-30 8/26/2016 Upper Aquifer	HR-3 8/25/2016 Upper Aquifer	GM-21 8/22/2016 Upper Aquifer	GM-6 8/22/2016 Upper Aquifer	GM-8 8/22/2016 Upper Aquifer	GM-19S 8/22/2016 Upper Aquifer	HR-4 8/19/2016 Upper Aquifer	W-2-N 8/15/2016 Upper Aquifer	W-3-N 8/19/2016 Upper Aquifer	W-4-N 8/19/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds														
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	10	< 1.0 U	7.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	10	7.6	6.6	< 1.0 U	< 1.0 U	0.37 J	3.4	1.6	< 1.0 U	< 1.0 U	4.6
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 2.0 U	**8.9**	< 2.0 U	< 1.0 U	< 1.0 U	0.79 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	13	**470**	< 1.0 U	**93**	< 1.0 U	0.29 J	< 1.0 U	44	0.42 J	2.8	22	9.5
Ethylbenzene	ug/L	700	< 1.0 U	< 2.0 U	4.7	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	1.3	**13**	< 1.0 U	0.95 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	1,000	< 1.0 U	< 2.0 U	1.1	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	0.31 J	14	6.5	2.5	< 1.0 U	< 1.0 U	< 1.0 U	0.64 J	< 1.0 U	< 1.0 U	0.34 J	0.63 J
Trichloroethene	ug/L	5	0.29 J	**360**	< 1.0 U	**200**	< 1.0 U	< 1.0 U	< 1.0 U	1.8	0.36 J	1.6	< 1.0 U	**10**
Vinyl chloride	ug/L	2	< 1.0 U	**42**	0.29 J	**4.2**	< 1.0 U	< 1.0 U	< 1.0 U	**4.6**	< 1.0 U	< 1.0 U	1.9	< 1.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 4.0 U	9.6	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		15	919	39	314	Not Detected	0.29	1.2	54	4.4	4.4	24	25

NOTES:
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[1] - A MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2016 data are shown in Appendix D.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
MCL - Maximum Contaminant Level.
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.
U - Constituent not detected above laboratory reporting limit shown.
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Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

			Closed South Settling Lagoon Monitoring Results					Downgradient On-Site				
	Units	MCL[1]	HR-16 8/22/2016 Upper Aquifer	HR-17 8/25/2016 Upper Aquifer	W-2-S 8/23/2016 Upper Aquifer	W-3-S 8/23/2016 Upper Aquifer	W-4-S 8/23/2016 Upper Aquifer	HR-1 8/23/2016 Upper Aquifer	GM-43 8/23/2016 Upper Aquifer	GM-35 8/23/2016 Upper Aquifer	HR-2 8/25/2016 Upper Aquifer	HR-7 8/15/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds												
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 2.0 U	1.4	< 2.0 U	1.6 J	1.1 J	1.6 J	<50 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		1.5	< 2.0 U	1.0	< 2.0 U	1.7 J	< 2.0 U	0.72 J	19 J	9.5	0.34 J
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	1.0	< 2.0 U	1.9	2.1	12	3.3	11	**120**	2.9	1.9
Ethylbenzene	ug/L	700	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	< 1.0 U	**170**	0.34 J	**62**	**54**	**63**	**41**	**27 J**	< 1.0 U	< 1.0 U
Toluene	ug/L	1,000	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	0.67 J	< 2.0 U	0.30 J	< 2.0 U	1.1 J	< 2.0 U	0.83 J	<50 U	0.39 J	< 1.0 U
Trichloroethene	ug/L	5	3.6	< 2.0 U	**6.6**	**11**	**45**	**190**	**260**	**120**	< 1.0 UB	**7.0**
Vinyl chloride	ug/L	2	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 4.0 U	< 2.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	<100 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		6.8	170	12	75	115	257	315	286	13	9.2

NOTES:
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ug/L - Micrograms per Liter.
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Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

			Property Boundary		Off-Site Downgradient of the Site											
	Units	MCL[1]	GM-2 8/19/2016 Upper Aquifer	TW-2 8/17/2016 Upper Aquifer	GM-16 8/18/2016 Upper Aquifer	GM-47 8/24/2016 Upper Aquifer	GM-50 8/23/2016 Upper Aquifer	GM-51 8/25/2016 Upper Aquifer	GM-52 8/25/2016 Upper Aquifer	GM-55 8/15/2016 Upper Aquifer	GM-63 8/24/2016 Upper Aquifer	GM-65S 8/17/2016 Upper Aquifer	GM-78 8/25/2016 Upper Aquifer	GM-79 10/27/2016 Upper Aquifer	GM-80 10/27/2016 Upper Aquifer	GM-26 8/15/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	2.2	< 1.0 U	< 1.0 U	0.70 J	0.54 J	< 1.0 U
1,1-Dichloroethane	ug/L		0.43 J	< 1.0 U	1.8	3.8	2.1	2.5	< 1.0 U	< 1.0 U	0.84 J	< 1.0 U	< 1.0 U	2.6	0.60 J	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 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	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	8.9	< 1.0 U	7.4	38	5.1	6.4	0.28 J	< 1.0 U	1.2 J	< 1.0 U	< 1.0 U	7.4	3.6	< 1.0 U
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**8.5**	< 1.0 U	**23**	**39**	**14**	**6.5**	**30**	2.0	**38**	3.4	**6.2**	2.1	**20**	1.3
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	1.8 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**6.3**	< 1.0 U	**5.7**	4.4	4.1	**33**	< 1.0 UB	< 1.0 U	5.0	< 1.0 U	< 1.0 U	**36**	**12**	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	0.31 J	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 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	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 3.3 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		24	Not Detected	38	87	25	50	30	2.0	47	3.4	6.2	49	37	1.3

NOTES:
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Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

	Units	MCL[1]	Upgradient Contributions		On-Site Groundwater Quality				Other On-Site Areas			
			RMW-88 8/26/2016 Lower Aquifer	HR-12 8/16/2016 Lower Aquifer	GM-54 8/18/2016 Lower Aquifer	GM-68D 8/17/2016 Lower Aquifer	GM-75D 8/24/2016 Lower Aquifer	RMW-85 8/24/2016 Lower Aquifer	HR-15 8/19/2016 Lower Aquifer	RMW-86 8/17/2016 Lower Aquifer	RMW-87 8/19/2016 Lower Aquifer	GM-19D 8/16/2016 Lower Aquifer
Site-Specific Volatile Organic Compounds												
1,1,1-Trichloroethane	ug/L	200	< 2.0 U	< 1.0 U	< 1.0 U	1.1	< 2.0 U	< 2.0 U	< 1.0 U	7.9	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		24	3.1	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	13	7.8	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	55	1.8	< 1.0 U	< 1.0 U	9.6	18	3.6	39	43 K	2.4
Ethylbenzene	ug/L	700	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	< 2.0 U	< 1.0 U	**61**	**31**	**200**	**62**	< 1.0 U	**59**	< 1.0 U	0.62 J
Toluene	ug/L	1,000	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	3.2	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	1.6	2.3	< 1.0 U
Trichloroethene	ug/L	5	< 2.0 U	< 1.0 U	1.6	2.6	**220**	**110**	1.5	**120**	**11**	4.9
Vinyl chloride	ug/L	2	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	0.90 J	0.42 J	0.35 J	**6.2**
Xylene (total)	ug/L	10,000	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		82	4.9	63	35	430	190	6.0	243	64	14

NOTES:
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[1] - A MCL is not listed for 1,1-dichloroethane.
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Table 3
Summary of Groundwater VOC Analytical Results from Upper/Lower Aquifer Monitoring Wells in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

			Off-Site and Side-Gradient			Off-Site and Downgradient				
	Units	MCL[1]	GM-83D 8/19/2016 Lower Aquifer	GM-84 8/17/2016 Lower Aquifer	GM-77D 8/17/2016 Lower Aquifer	GM-11 8/18/2016 Lower Aquifer	GM-15 8/18/2016 Lower Aquifer	GM-20D 8/19/2016 Lower Aquifer	GM-9 8/17/2016 Lower Aquifer	DN-13 8/25/2016 Lower Aquifer
Site-Specific Volatile Organic Compounds										
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.0	0.97 J
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.0	< 1.0 U	< 1.0 U	1.3
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	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	8.3	< 1.0 U	< 1.0 U	5.6
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	**17**	1.2	< 1.0 U	1.3	< 1.0 U	1.5
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	< 1.0 U	< 1.0 U	0.75 J	< 1.0 U	< 1.0 U	0.37 J
Trichloroethene	ug/L	5	< 1.0 U	4.7	< 1.0 U	**12**	**6.3**	1.5	**13**	**8.1**
Vinyl chloride	ug/L	2	**3.1**	< 1.0 U	< 1.0 U	< 1.0 U	0.69 J	< 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		3.1	4.7	17	13	18	2.8	14	18

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
[1] - A MCL is not listed for 1,1-dichloroethane.
The QA/QC results for 2016 data are shown in Appendix D.
BOLD - Result above MCL.
ug/L - Micrograms per Liter.
MCL - Maximum Contaminant Level.
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.
U - Constituent not detected above laboratory reporting limit shown.
UB - Analyte considered non-detect at listed value due to associated blank contamination.

Table 4
Summary of Groundwater 1,4-Dioxane Analytical Results
from Upper/Lower Aquifer Monitoring Wells for 2014 through 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	1,4-Dioxane (µg/L)
U.S. EPA Recommended Action Level[(1)]		**4.6**
Upgradient of the Site - Upper Aquifer		
GM-24	12/11/2015	< 50 U
On-Site - Upper Aquifer		
GM-6	8/22/2016	**6.6**
GM-8	10/7/2014	**18**
	6/26/2015	**22**
	8/25/2015	**25**
	8/22/2016	**18**
GM-19S	8/24/2015	< 2.0 U
GM-21	10/9/2014	1.3 J
	6/26/2015	0.51 J
	12/11/2015	< 100 U
	8/22/2016	0.61 J
GM-23	10/10/2014	0.87 J
GM-29	10/9/2014	< 2.0 U
	8/22/2016	0.41 J
GM-30	8/26/2015	1.1 J
	12/11/2015	< 100 U
GM-31	10/9/2014	0.95 J
	12/8/2015	< 50 U
GM-33	8/24/2015	< 2.0 U
GM-35	6/25/2015	**420**
	8/25/2015	**590**
	8/23/2016	**340**
GM-37	8/24/2015	0.51 J
	8/24/2015	0.51 J
GM-59	10/10/2014	< 2.0 U
GM-60	10/9/2014	1.3 J
	8/23/2016	0.42 J
GM-66	8/26/2015	**6.4**
	12/8/2015	< 50 U
GM-75S	10/9/2014	< 2.0 U
	12/11/2015	< 63 U
HR-16	6/24/2015	2.8
	8/25/2015	3.0
HR-17	6/25/2015	< 2.0 U
W-1-N	10/8/2014	0.96 J
	8/26/2015	1.2 J
W-3-S	6/25/2015	< 2.0 U

NOTES:

1 - The groundwater action level for 1,4-dioxane was recommended by the U.S. EPA via email on November 24, 2015.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above the Action Level.

F2 - Matrix Spike/Matrix Spike Duplicate (MS/MSD) Relative Percent Differences (RPD) exceeds the laboratory control limits.

J - Value is estimated.

ug/L - Micrograms per Liter.

U - Constituent not detected above laboratory reporting limit shown.

Table 4
Summary of Groundwater 1,4-Dioxane Analytical Results
from Upper/Lower Aquifer Monitoring Wells for 2014 through 2016
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

Well	Date	1,4-Dioxane (µg/L)
U.S. EPA Recommended Action Level[(1)]		**4.6**
Downgradient of the Site - Upper Aquifer		
GM-2	6/26/2015	< 2.0 U
GM-10	6/24/2015	< 2.0 U
GM-16	10/7/2014	**9.1**
	6/30/2015	2.2
	8/25/2015	**10**
	8/18/2016	0.29 J
GM-17	6/24/2015	< 2.0 U
GM-18	6/24/2015	0.56 J
	12/11/2015	< 50 U
GM-48	6/29/2015	0.65 J
GM-50	6/30/2015	< 2.0 U
GM-51	6/29/2015	< 2.0 U
GM-52	6/29/2015	0.76 J
	8/25/2015	0.90 J
	8/25/2016	0.76 J
GM-55	6/25/2015	< 2.0 U
GM-63	6/30/2015	< 2.0 U
GM-65S	6/29/2015	< 2.0 U
GM-78	6/30/2015	< 2.0 U
GM-79	6/24/2015	1.9 J
	8/19/2016	1.1 J
GM-80	6/25/2015	< 2.0 U
	8/19/2016	< 2.0 U
GM-81	6/25/2015	< 2.0 U
Upgradient of the Site - Lower Aquifer		
HR-12	8/24/2015	**46**
	12/8/2015	**40 J**
	8/16/2016	**68**
RMW-88	8/26/2015	**29**
	8/26/2016	**25**

NOTES:

1 - The groundwater action level for 1,4-dioxane was recommended by the U.S. EPA via email on November 24, 2015.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above the Action Level.

F2 - Matrix Spike/Matrix Spike Duplicate (MS/MSD) Relative Percent Differences (RPD) exceeds the laboratory control limits.

J - Value is estimated.

ug/L - Micrograms per Liter.

U - Constituent not detected above laboratory reporting limit shown.

Table 4
Summary of Groundwater 1,4-Dioxane Analytical Results
from Upper/Lower Aquifer Monitoring Wells for 2014 through 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	1,4-Dioxane (µg/L)
U.S. EPA Recommended Action Level[1]		**4.6**
On-Site - Lower Aquifer		
GM-7R	6/26/2015	**9.3**
	8/25/2015	**14**
GM-61	6/26/2015	**22**
	8/26/2015	**26**
GM-67D	8/24/2015	**33**
GM-74D	8/24/2015	0.78 J
	8/24/2015	0.78 J
GM-75D	10/9/2014	**50**
	8/25/2015	**31**
	12/8/2015	< 50 U
	8/24/2016	**24**
GM-76D	8/24/2015	**7.8**
GM-82	12/11/2015	< 100 U
GM-83D	8/19/2016	**8.2**
HR-13	6/30/2015	**20**
	8/26/2015	**16**
HR-14	8/26/2015	**11**
RMW-85	12/8/2015	< 50 U
RMW-86	6/25/2015	**5.2**
	12/8/2015	< 50 U
	8/17/2016	**11**
RMW-87	8/26/2015	**29**
	8/19/2016	**20**
Downgradient of the Site - Lower Aquifer		
GM-09	12/11/2015	< 50 U
	8/17/2016	0.91 J
GM-11	8/24/2015	< 2.0 U
	8/18/2016	< 2.0 U
GM-13	6/24/2015	< 2.0 U
GM-15	6/30/2015	3.1
	8/25/2015	2.8
	8/18/2016	2.8
GM-65D	6/29/2015	< 2.0 UF2

NOTES:

1 - The groundwater action level for 1,4-dioxane was recommended by the U.S. EPA via email on November 24, 2015.

< - Constituent not detected above laboratory reporting limit shown.

BOLD - Result above the Action Level.

F2 - Matrix Spike/Matrix Spike Duplicate (MS/MSD) Relative Percent Differences (RPD) exceeds the laboratory control limits.

J - Value is estimated.

µg/L - Micrograms per Liter.

U - Constituent not detected above laboratory reporting limit shown.

Table 5
DN-13 Monthly Effluent Monitoring for 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Volatile Organic Compound[1]	Units	January 2016[2]	2/5/2016	3/7/2016	4/6/2016	5/4/2016	6/1/2016	7/12/2016	8/3/2016	9/6/2016	10/5/2016	11/3/2016	12/8/2016
1,1,1-Trichloroethane	ug/L	NS	0.59 J	0.70 J	0.87 J	0.93 J	1.1	0.99 J	1.0	1.1	0.40 J	1.0	0.95 J
1,1-Dichloroethane	ug/L	NS	0.86 J	1.3	1.5	1.3	1.8	1.4	1.5	1.5	0.85 J	1.5	1.3
Benzene	ug/L	NS	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroethane	ug/L	NS	< 1.0 U	< 1.0 U	< 1.0 U	< 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	NS	3.4	5.2	5.6	6.5	6.4	5.5	5.9	5.9	3.8	6.1	5.4
Ethylbenzene	ug/L	NS	< 1.0 U	< 1.0 U	< 1.0 U	< 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	NS	2.1	1.4	1.5	1.8	1.5	1.6	1.3	1.5	1.0	1.4	1.4
Toluene	ug/L	NS	< 1.0 U	< 1.0 U	< 1.0 U	< 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	NS	7.8	8.6	8.7	9.0	8.9	8.7	7.9	9.8	5.1	8.1	8.0
Vinyl chloride	ug/L	NS	< 1.0 U	0.84 J	0.88 J	0.92 J	0.79 J	0.82 J	0.79 J	0.80 J	< 1.0 U	0.82 J	0.86 J
Xylene (total)	ug/L	NS	< 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**	**NA**	**15**	**8.0**	**19**	**20**	**20**	**19**	**18**	**21**	**11**	**19**	**18**

NOTES:
[1] - Analytical method for volatile organic compounds (VOC) analysis is U.S. EPA Method 624.
[2] - No sample (NS) was collected in January 2016. Pump for DN-13 was not in operation.
< - 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 6
Monitoring 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											
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	620466.6686	1482207.4451	UA
W-4-S	726.66	727.92	4	30	70	696.66	656.66	70	620394.9579	1482564.2035	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

Table 6
Monitoring Well Construction Details
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS 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-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
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	623340.7680	1484507.2070	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	620761.9955	1483714.2282	UA:TT
GM-34	731.06	730.56	2	26	36	705.06	695.06	36	620753.8480	1483727.5719	UA:WT
GM-35	731.56	731.27	2	57	67	674.56	664.56	70	620389.3810	1483279.5201	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	622761.5281	1484712.7729	UA:WT
GM-60	732.46	732.24	2	42	52	690.46	680.46	52	622761.3002	1484712.7809	UA:TT
GM-62R(4)	723.15	723.51	2	50	60	NA	NA	60	618423.9410	1482812.6470	UA
GM-63	726.21	725.79	2	30	40	696.21	686.21	40	620283.7218	1482686.3290	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	732.48	732.18	2	39.5	49.5	692.98	682.98	49.5	622326.2125	1484652.8528	UA:TT
GM-71	737.19	736.82	2	21	31	716.19	706.19	37	622633.7567	1485222.9070	UA:TUT

Table 6
Monitoring 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											
GM-72	737.05	736.78	2	52	62	685.05	675.05	67	622633.7567	1485233.9320	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
EAST	NM	730.98	2	NA	NA	NA	NA	71	620545.6947	1483674.2190	UA:TT
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 6
Monitoring 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
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 6
Monitoring 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
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	619196.1959	1482267.5426	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 all 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.

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 7
Groundwater Level Measurements Collected During 2016
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	29.82	70.00	709.20
W-2-N	731.68	22.82	59.70	708.86
W-3-N	733.66	24.80	57.60	708.86
W-4-N	731.63	22.68	66.60	708.95
HR-1	732.71	24.59	59.00	708.12
HR-2	734.75	25.74	58.70	709.01
HR-3	736.75	27.69	62.20	709.06
HR-4	742.60	33.34	66.80	709.26
HR-5	734.27	25.41	57.80	708.86
HR-6	732.66	21.39	55.45	711.27*
HR-7	731.73	23.08	57.40	708.65
HR-11	743.33	33.47	69.10	709.86
HR-16	727.01	19.56	65.00	707.45
HR-17	726.43	18.67	59.55	707.76
W-1-S	729.29	21.27	59.55	708.02
W-2-S	726.64	19.65	67.00	706.99
W-3-S	729.17	22.12	76.40	707.05
W-4-S	727.92	20.58	72.50	707.34
GM-2	735.81	28.41	56.30	707.40
4S	731.36	24.27	68.40	707.09
GM-6	730.27	23.36	46.30	706.91
GM-8	735.17	28.25	50.00	706.92*
GM-10	723.90	17.32	50.20	706.58
GM-16	725.30	18.75	58.00	706.55
GM-17	723.84	17.08	50.05	706.76
GM-18	723.80	17.16	54.86	706.64
GM-19S	730.92	23.32	57.00	707.60
GM-21	725.00	17.40	53.30	707.60
GM-22	731.63	23.27	57.20	708.36
GM-23	731.07	21.85	32.20	709.22
GM-24	747.29	36.91	68.05	710.38
GM-25	746.17	36.77	58.00	709.40
GM-26	722.29	16.03	58.40	706.26*
GM-27	730.57	21.33	47.10	709.24
GM-28R[1]	731.28	23.05	32.00	708.23*
GM-29	731.37	22.09	32.60	709.28
GM-30	734.79	25.55	36.00	709.24
GM-31[2]	732.13	NM	63.20	NM
GM-32	732.08	24.61	56.50	707.47
GM-33	729.77	21.84	54.30	707.93
GM-34	730.56	22.60	35.25	707.96
GM-35	731.27	23.79	65.40	707.48*
GM-36	731.11	23.53	34.45	707.58

Table 7
Groundwater Level Measurements Collected During 2016
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	22.20	34.25	707.85
GM-38	729.88	22.35	56.10	707.53
GM-43	729.00	20.79	49.70	708.21
GM-44	728.77	28.80	60.90	699.97*
GM-45	729.75	21.18	60.00	708.57
GM-46	727.79	17.45	27.70	710.34*
GM-47	726.75	19.93	59.40	706.82
GM-48	728.67	23.39	73.02	705.28*
GM-49	727.88	21.92	76.29	705.96
GM-50	726.56	19.76	39.50	706.80
GM-51	728.30	22.16	44.20	706.14
GM-52	727.62	21.74	44.00	705.88
GM-53	730.35	21.99	32.55	708.36
GM-55	719.86	13.58	35.10	706.28
GM-57	721.74	16.22	35.00	705.52
GM-59	732.25	23.37	34.40	708.88
GM-60	732.24	23.36	50.40	708.88
GM-62R[1]	723.51	17.30	60.70	706.21*
GM-63	725.79	18.71	39.10	707.08
GM-64	725.95	18.90	58.50	707.05
GM-65S	723.58	18.04	52.10	705.54
GM-66	733.22	24.58	54.20	708.64
GM-67S	732.06	23.13	53.60	708.93
GM-68S	732.18	23.42	49.90	708.76
GM-71	736.82	27.84	61.40	708.98
GM-72	736.78	27.79	32.10	708.99
GM-74S	732.17	23.30	49.50	708.87
GM-75S	737.69	28.75	51.80	708.94
GM-76S	739.00	29.46	36.80	709.54
GM-77S	741.14	32.22	42.69	708.92
GM-78	721.18	14.39	49.40	706.79
GM-79	717.91	12.19	54.20	705.72
GM-80	715.82	10.51	24.50	705.31
GM-81	715.31	9.90	60.36	705.41
GM-83S	725.84	17.24	53.80	708.60
RMW-89[1]	738.56	30.21	50.30	708.35*
RMW-90[1]	727.41	18.83	54.15	708.58*
EAST	730.98	23.07	71.30	707.91
WEST	731.08	23.29	51.40	707.79
WSU-17	726.18	19.24	46.25	706.94
WSU-18	733.52	24.46	61.20	709.06*
WSU-19	726.62	19.24	63.10	707.38*
WSU-22[4]	Damaged	17.95	NM	NA
WSU-23	724.90	18.16	57.40	706.74
WSU-24	724.82	17.71	66.55	707.11
TW-2	733.38	26.44	46.00	706.94
ME-2	732.08	23.91	NM	708.17
ME-3	731.73	NM	NM	NM
ME-4	732.24	NM	NM	NM
ME-6	732.68	NM	NM	NM

Table 7
Groundwater Level Measurements Collected During 2016
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	28.71	103.40	707.03
GM-3	730.44	23.87	102.20	706.57
GM-4	731.46	24.94	139.50	706.52
GM-5	731.29	24.62	102.00	706.67
GM-7R	735.61	28.69	93.20	706.92
GM-9	724.07	17.80	99.60	706.27
GM-11	723.71	17.55	99.20	706.16
GM-13	723.82	18.04	100.10	705.78
GM-14	723.50	17.74	150.00	705.76
GM-15	725.23	19.64	98.90	705.59
GM-19D	730.73	23.32	148.00	707.41*
GM-20D	727.26	20.06	100.80	707.20
GM-39	730.95	21.76	118.40	709.19
GM-40	727.04	19.68	150.30	707.36
GM-41	733.65	25.25	16.30	708.40
GM-42	729.16	21.90	152.30	707.26
GM-54	730.29	21.83	80.00	708.46
GM-56	719.52	13.30	86.44	706.22
GM-58	735.46	26.71	82.00	708.75
GM-61	732.23	23.40	78.94	708.83
GM-65D	723.54	18.09	96.51	705.45
GM-67D	732.19	23.82	79.20	708.37
GM-68D	732.27	23.64	70.80	708.63
GM-69	732.08	24.02	100.79	708.06
GM-70	737.19	28.28	81.80	708.91
GM-73	736.97	27.94	96.50	709.03
GM-74D	732.04	23.31	80.21	708.73
GM-75D	737.68	28.64	94.30	709.04
GM-76D	738.94	29.82	80.10	709.12
GM-77D	740.93	31.97	86.30	708.96
GM-82	732.14	23.93	96.87	708.21
GM-83D	725.77	18.49	119.70	707.28
GM-84	739.92	31.55	106.80	708.37
RMW-85[5]	736.65	27.60	94.40	709.05
RMW-86[5]	729.22	22.10	80.10	707.12
RMW-87[5]	728.01	20.37	76.10	707.64
RMW-88[1]	738.25	30.59	102.70	707.66*
HR-12	742.64	32.80	134.61	709.84
HR-13	735.03	24.96	87.00	710.07*
HR-14	731.63	22.85	91.20	708.78
HR-15	733.74	25.14	102.20	708.60
M73C	716.55	10.75	NM	705.80
MT576M	751.46	41.18	NM	710.28
MT596M	757.73	41.80	NM	715.93*

Table 7
Groundwater Level Measurements Collected During 2016
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	68.75	170	659.03*
11B	742.56	32.98	NM	709.58
31[3]	734.05	NM	122	NM
34	733.46	24.73	NM	708.73
39	732.07	22.81	142	709.26
A	739.00	28.11	NM	710.89*
FW-1A	739.89	31.27	NM	708.62*
FW-2[2]	737.48	NM	NM	NM
FW-3[2]	739.26	NM	NM	NM
FW-4[2]	731.62	NM	NM	NM
Stream Gauge**				
SG1	747.64	NM	NA	NM
SG2	709.95	NM	NA	NM
SG3	718.45	NM	NA	NM
SG4	714.78	NM	NA	NM
SG5	711.10	1.58	NA	709.52*
SG6	723.21	15.94	NA	707.27*
SG7	731.55	14.94	NA	716.61*
IRZ Wells				
RZ-1D	731.20	15.66	NM	715.54
RZ-3F	728.54	20.97	NM	707.57
RZ-3N	729.99	22.35	NM	707.64
RZ-3MM	726.92	19.50	48.96	707.42*
RZ-4A	725.71	17.83	55.10	707.88*
RZ-4D	727.07	19.83	53.90	707.24*
RZ-4G	728.16	20.65	NM	707.51*
RZ-4O	726.46	20.31	NM	706.15*
Moraine City				
MW-1	715.53	9.10	NM	706.43
MW-4	707.19	5.49	NM	701.70
MW-5	709.34	5.71	NM	703.63
MW-9	712.85	10.21	NM	702.64

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 NGVD29 vertical datum.

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

Groundwater levels were measured on September 13 and 14, 2016 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 all 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 8
Summary of Precipitation Measurements Recorded
by the National Weather Service during 2016 – Dayton, Ohio
RACER Trust Moraine Facilities
Moraine, Ohio

Month	Actual Precipitation	Average Precipitation[1]	Departure from Average
January	1.50	2.91	1.41 Below
February	3.32	2.30	1.02 Above
March	5.50	3.49	2.01 Above
April	2.95	3.54	0.59 Below
May	2.95	3.88	0.93 Below
June	3.60	3.91	0.31 Below
July	2.97	3.58	0.61 Below
August	3.74	3.00	0.74 Above
September	3.28	2.85	0.43 Above
October	1.90	2.54	0.64 Below
November	1.08	2.85	1.77 Below
December	2.99	2.81	0.18 Above
2016 Total	**35.78**	**37.75**	**1.97 Below**

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 2016 Total, taken from the NOAA Website, does not equal the cumulative average monthly precipitation data reported above. This is likely due to rounding.

Table 9
Horizontal Gradients for Upper/Lower Aquifer Well Pairs in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

Horizontal Gradients - September 13 and 14, 2016	ft./ft.
W-1-N/W-4-N	1.7E-04
W-2-N/W-1-S	3.4E-04
W-3-N/HR-1	4.2E-04
HR-5/HR-1	5.5E-04
HR-4/HR-1	4.7E-04
W-1-N/HR-5	1.8E-04
W-1-N/HR-1	3.4E-04
HR-7/W-1-S	3.2E-04
HR-5/W-1-S	4.2E-04
HR-1/GM-16	5.6E-04
GM-75S/GM-68S	3.0E-04
GM-53/4S	5.3E-04
Average Hydraulic Gradient for Upper Aquifer Wells	**3.8E-04**
GM-58/GM-20D	4.9E-04
GM-39/GM-1	5.0E-04
HR-15/GM-3	4.9E-04
HR-14/GM-5	5.1E-04
GM-67D/RMW-87	3.8E-04
Average Hydraulic Gradient for Lower Aquifer Wells	**4.8E-04**

NOTES:

ft. - feet.

Table 10
Vertical Gradients for Upper/Lower Aquifer Well Pairs in 2016
RACER Trust Moraine Facilities
Moraine, Ohio

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Vertical Gradients - September 13 and 14, 2016		
Upper/Lower Aquifer Wells	**Direction**	**Gradient (ft./ft.)**
Upgradient		
HR-11/HR-12	D	-3.3E-04
On-Site		
W-3-N/HR-15	D	-5.4E-03
GM-2/GM-1	D	-8.2E-03
GM-6/GM-3	D	-6.2E-03
4S/GM-5	D	-8.8E-03
GM-75S/GM-75D	U	+2.3E-03
Off-Site/Downgradient		
GM-10/GM-9	D	-6.2E-03
GM-16/GM-15	D	-2.3E-02
GM-18/GM-13	D	-1.9E-02
GM-17/GM-11	D	-1.2E-02
GM-55/GM-56	D	-1.3E-03
GM-65S/GM-65D	D	-2.1E-03

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 11
Lower Aquifer Triangular Irregular Network Horizontal Hydraulic Gradients in 2016
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-4	GM-20D	1.3E-03	313
	707.03	**706.52**	**707.20**		
TIN B	GM-4	GM-20D	GM-14	2.0E-03	274
	706.52	**707.20**	**705.76**		
TIN C	GM-14	GM-20D	GM-9	2.0E-03	282
	705.76	**707.20**	**706.27**		
TIN D	GM-9	GM-14	M73C	1.0E-03	331
	706.27	**705.76**	**705.80**		
TIN E	GM-4	GM-14	GM-15	1.4E-03	225
	706.52	**705.76**	**705.59**		

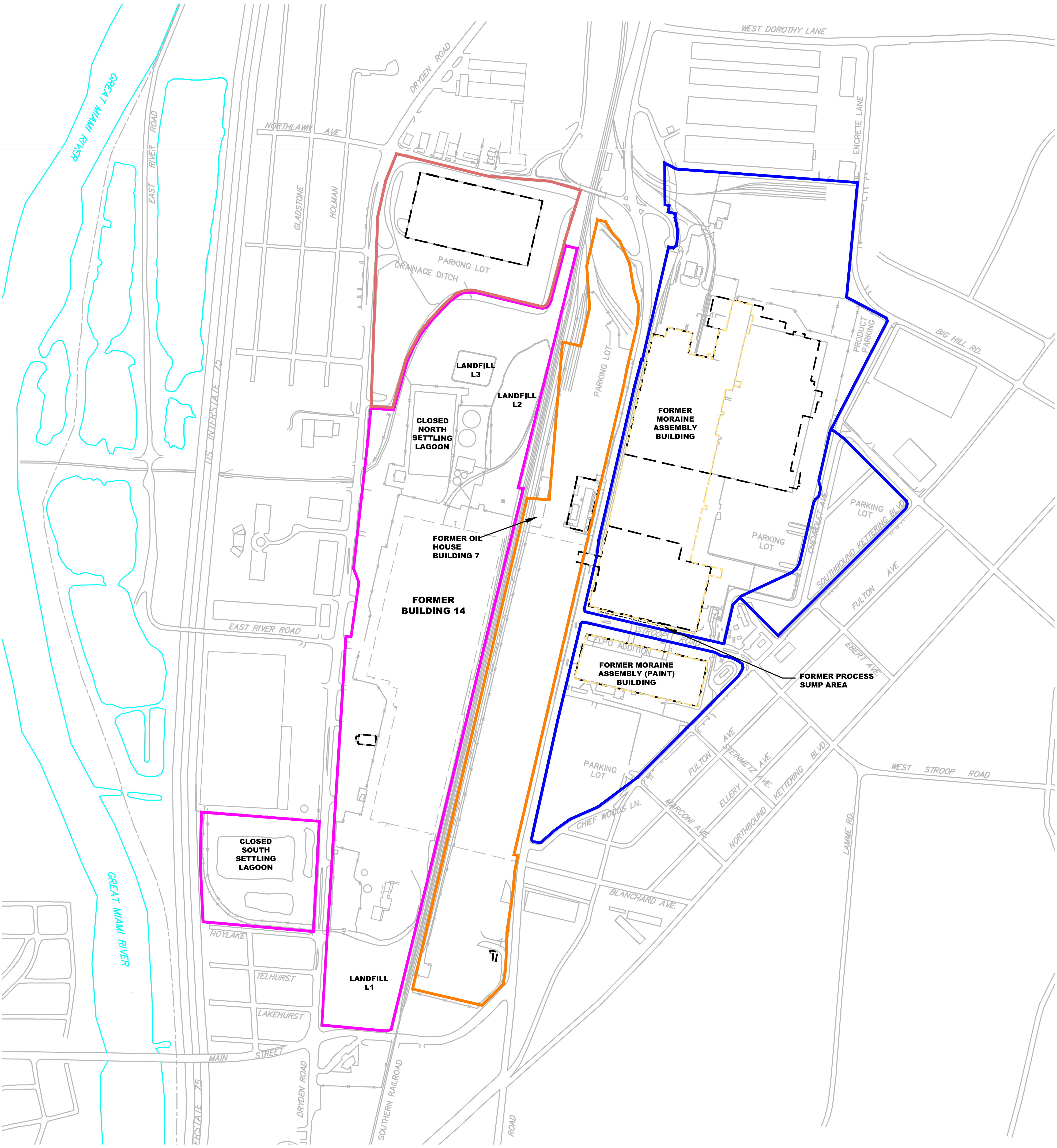
NOTES:

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

OH000294.2017

SITE LAYOUT

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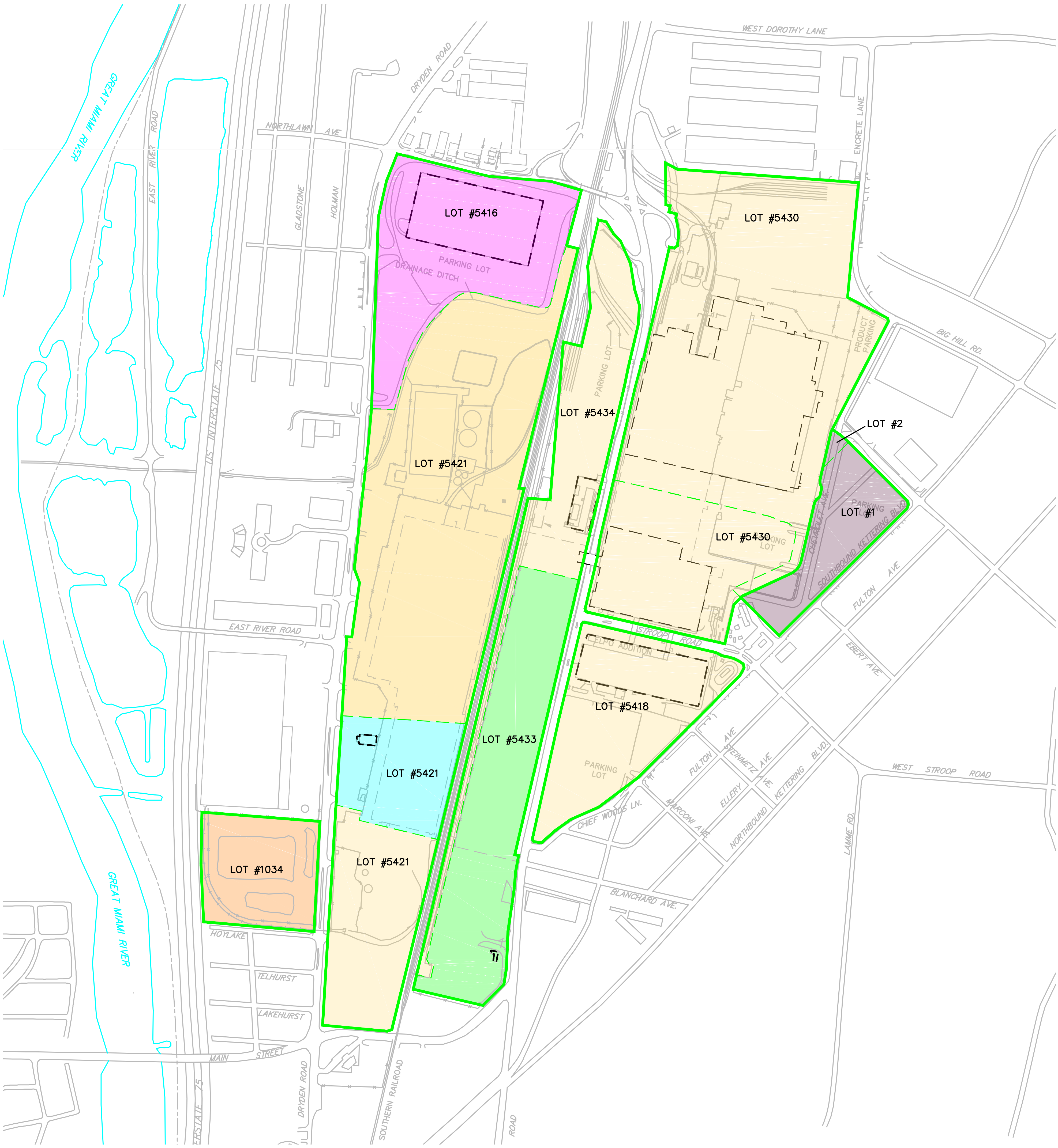
FIGURE
1



LEGEND

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

N

0 200 1000ft

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 #5430	94.060 Ac.	FUYAO ASSET MANAGEMENT A LLC
LOT #5418	31.576 Ac.	IRG MORAINE LLC
LOT #5434	29.899 Ac.	IRG MORAINE LLC
LOT #5421	25.020 Ac.	IRG MORAINE LLC
LOT #5421	85.544 Ac.	IRG MORAINE LLC
LOT #5430	30.580 Ac.	IRG MORAINE LLC
LOT #1034	18.174 Ac.	RACER PROPERTIES LLC
LOT #5433	41.145 Ac.	COPART OF CONNECTICUT INC.
LOT #5421	14.210 Ac.	INLAND PROPERTY MANAGEMENT
LOT #5416	38.612 Ac.	DMAX LTD

NOTE:
LOT INFORMATION WAS CHECKED ON 2/13/17 AT HTTP://ENGINEER.GOMVO.ORG/APPS/LANDRECORDS/

RACER TRUST
MORAINE, OHIO

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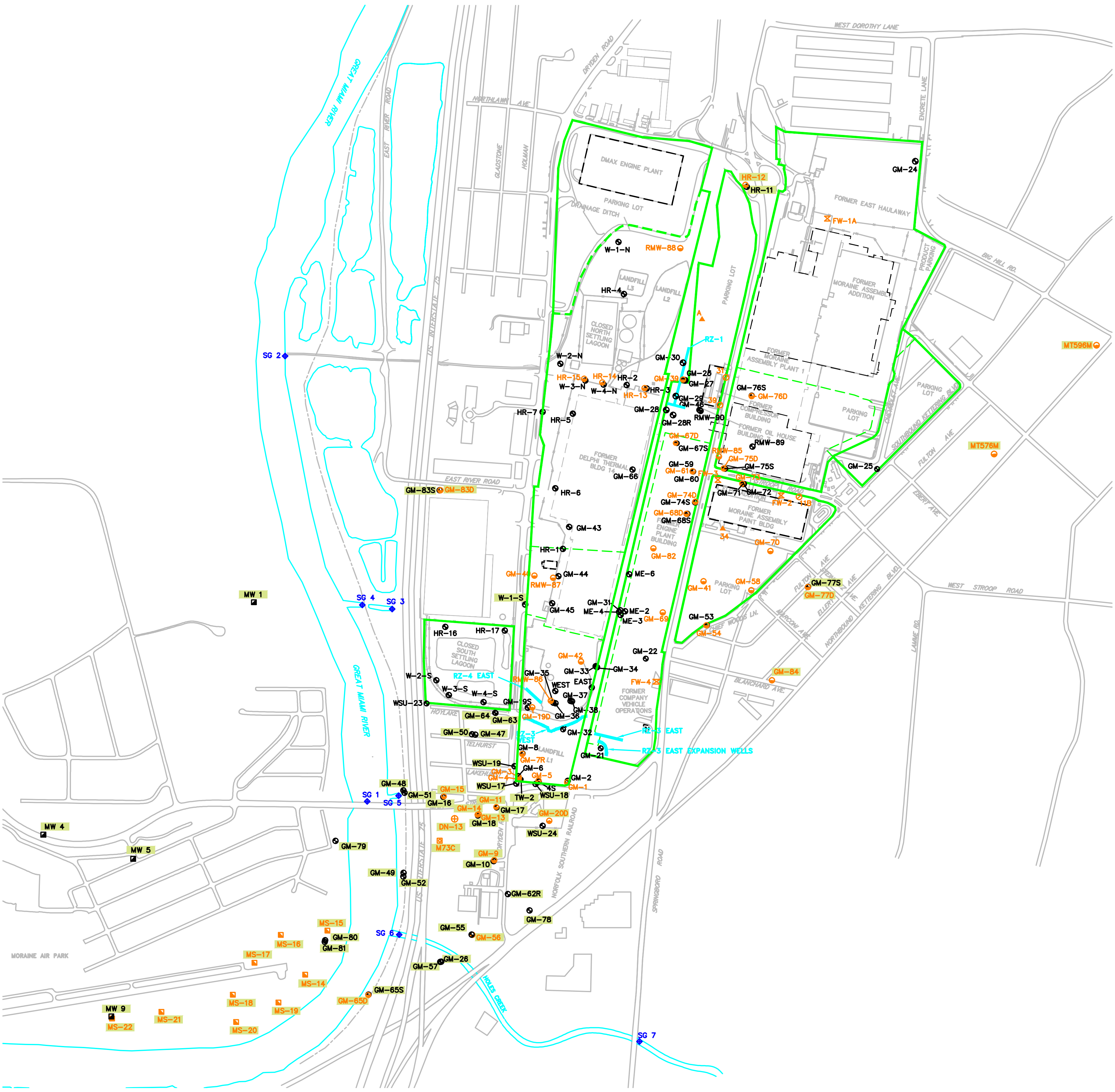
SITE PARCEL MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2



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, 12A)
- 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)
- 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.

0 200 1000ft

RACER TRUST
MORAINE, OHIO

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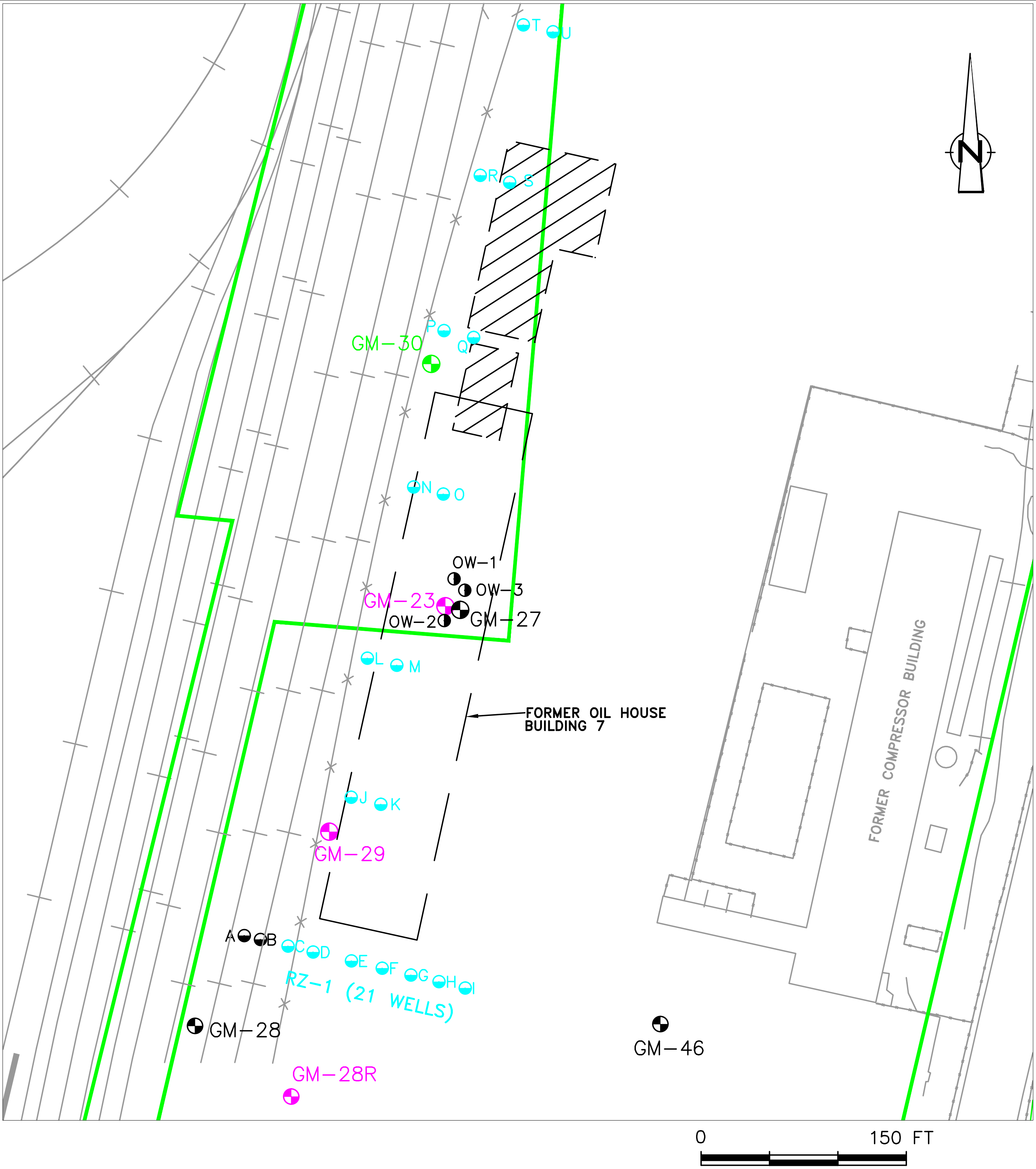
SITE-WIDE CORRECTIVE MEASURES

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3



LEGEND

- MONITORING WELL USED FOR SITE-WIDE ON AN ANNUAL BASIS (UPPER AQUIFER)
- 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

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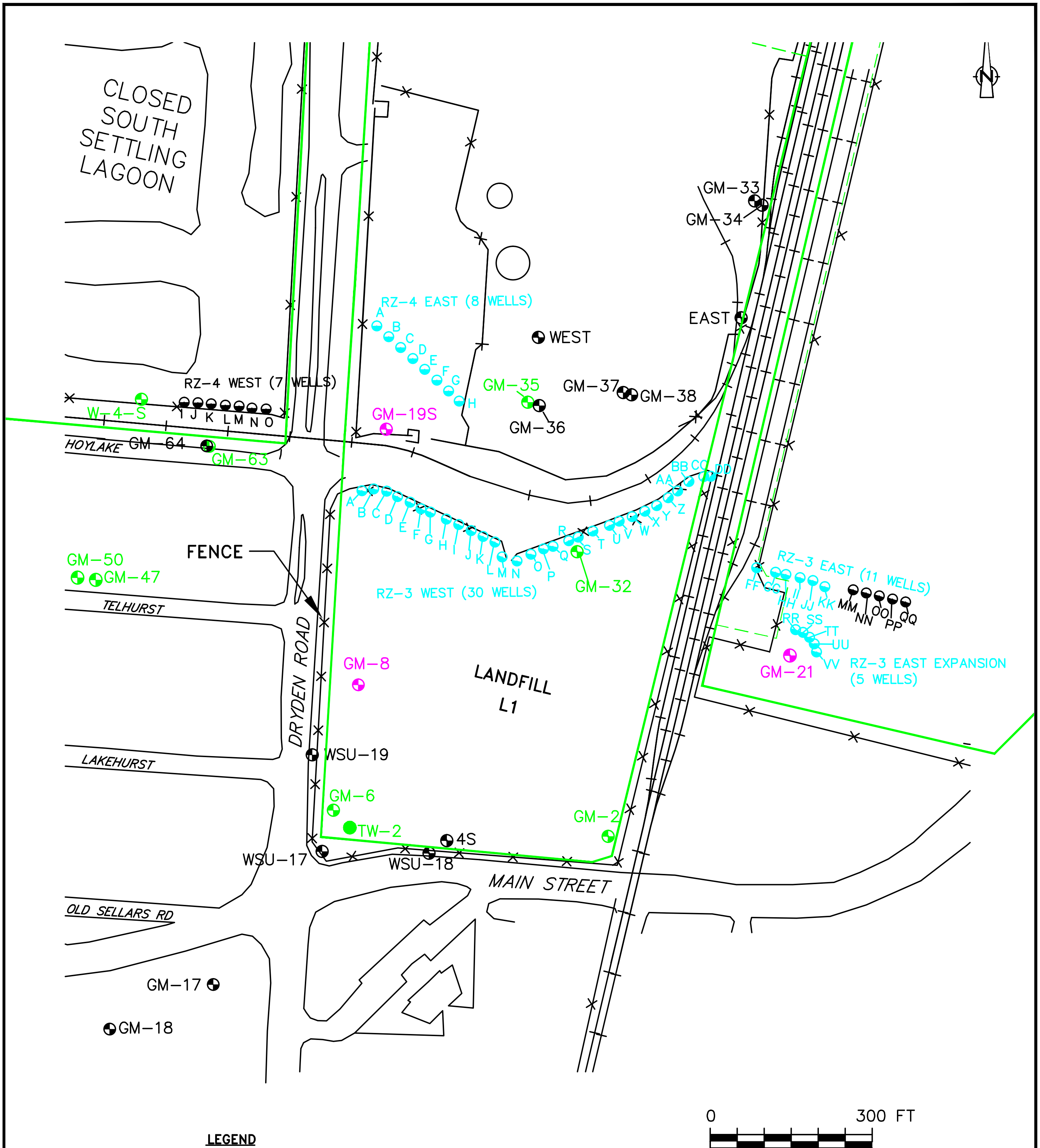
REACTIVE ZONE #1

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4



LEGEND

- MONITORING WELL USED FOR SITE-WIDE MONITORING ON AN ANNUAL BASIS (UPPER AQUIFER)
- CARBON SOURCE INTRODUCTION WELLS
- INACTIVE CARBON SOURCE INTRODUCTION WELLS
- INACTIVE RECOVERY WELL (USED FOR SITE-WIDE MONITORING)
- MONITORING WELL (UPPER AQUIFER)
- MONITORING WELL UTILIZED FOR PERFORMANCE MONITORING
- 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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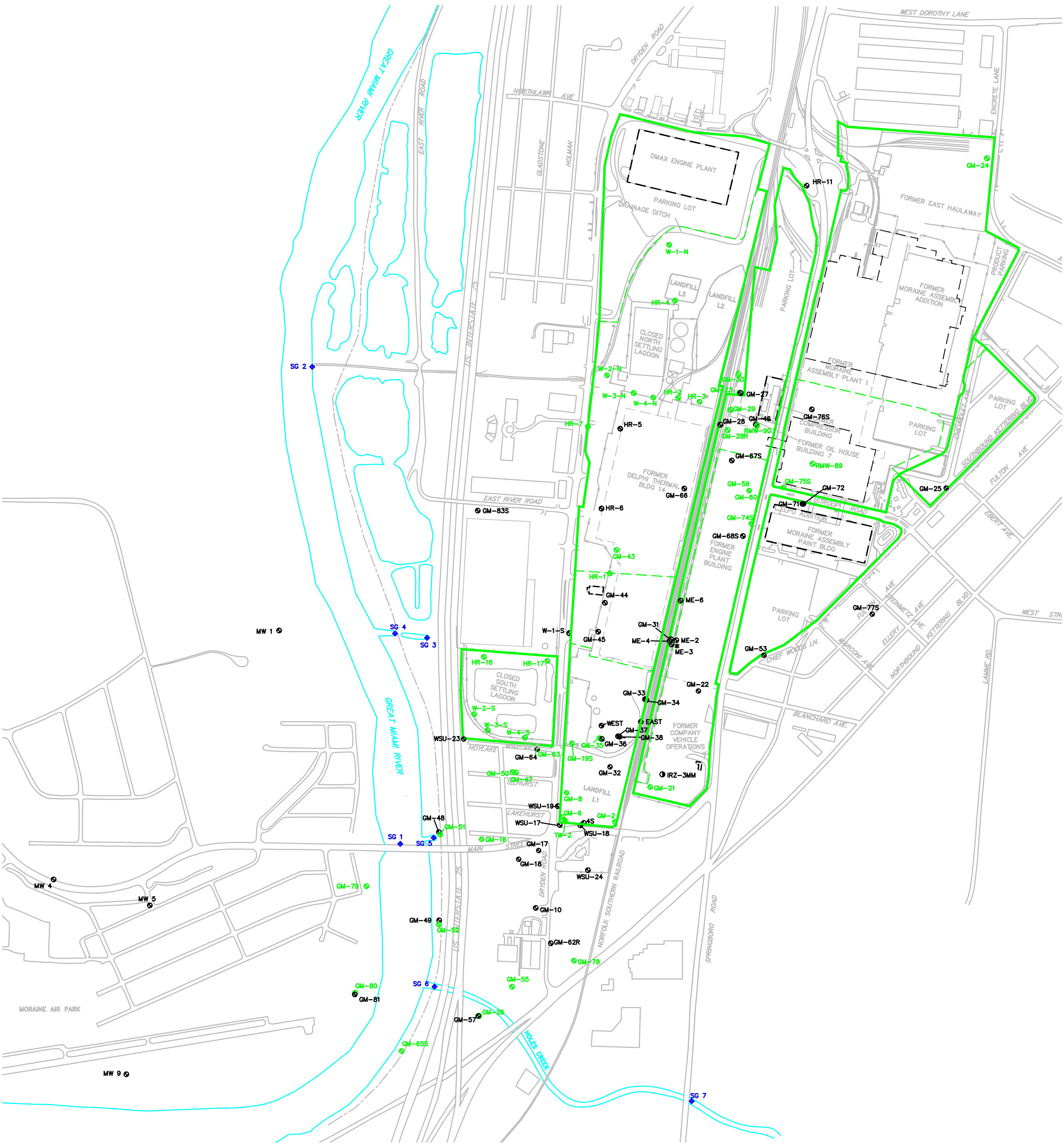
REACTIVE ZONES #3 AND #4

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

CITY:(COLUMBUS) DIV/GROUP:(SER2) DB:(R. SMITH) LD:(Opt) PIC:(Opt) PM:(N. GILLOTTI) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-04.dwg LAYOUT: RZ-3 & 4 SAVED: 2/13/2017 9:43 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/16/2017 1:59 PM BY: SMITH, BOB
XREFS: PROJECTNAME: ----



LEGEND

- MONITORING WELL (UPPER AQUIFER)
- INACTIVE RECOVERY WELL (USED FOR SITE-WIDE MONITORING)
- STREAM GAUGE
- CARBON INTRODUCTION WELL
- MONITORING WELL USED FOR SITE-WIDE MONITORING ON AN ANNUAL BASIS (UPPER AQUIFER)
- FORMER BUILDING FOOTPRINT
- CURRENT BUILDING FOOTPRINT
- RIVER LEVEE
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY

RACER TRUST
MORAINE, OHIO

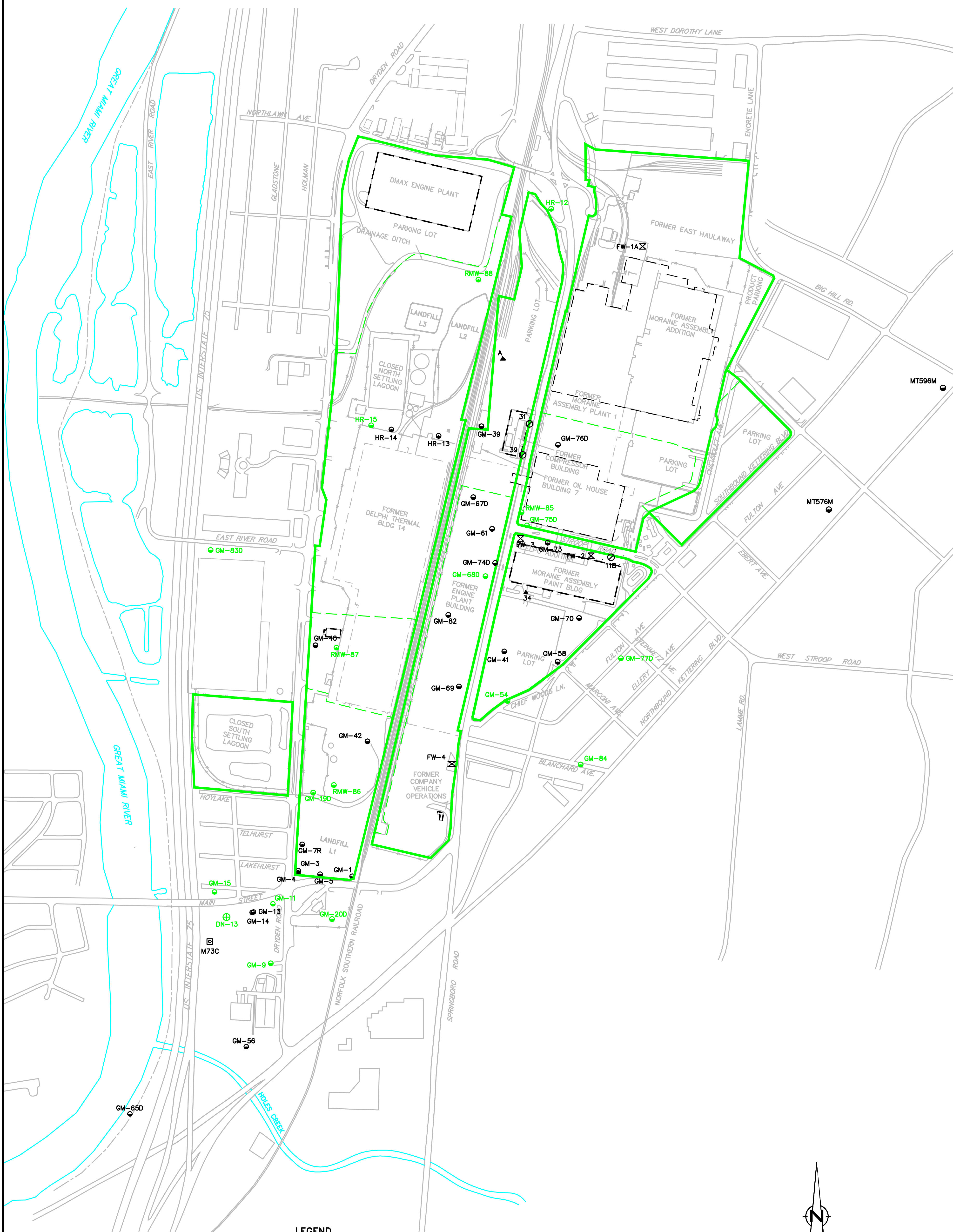
OH000294.2017

UPPER AQUIFER MONITORING WELLS FOR SITE-WIDE GROUNDWATER MONITORING

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-00.dwg LAYOUT: FIG - DEEP WELLS SAVED: 2/13/2017 2:38 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/16/2017 1:19 PM BY: SMITH, BOB



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)
- MONITORING WELL USED FOR SITE-WIDE MONITORING ON AN ANNUAL BASIS (LOWER AQUIFER)
- FORMER BUILDING FOOTPRINT
- CURRENT BUILDING FOOTPRINT
- RIVER LEVEE
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY

RACER TRUST
MORAINE, OHIO

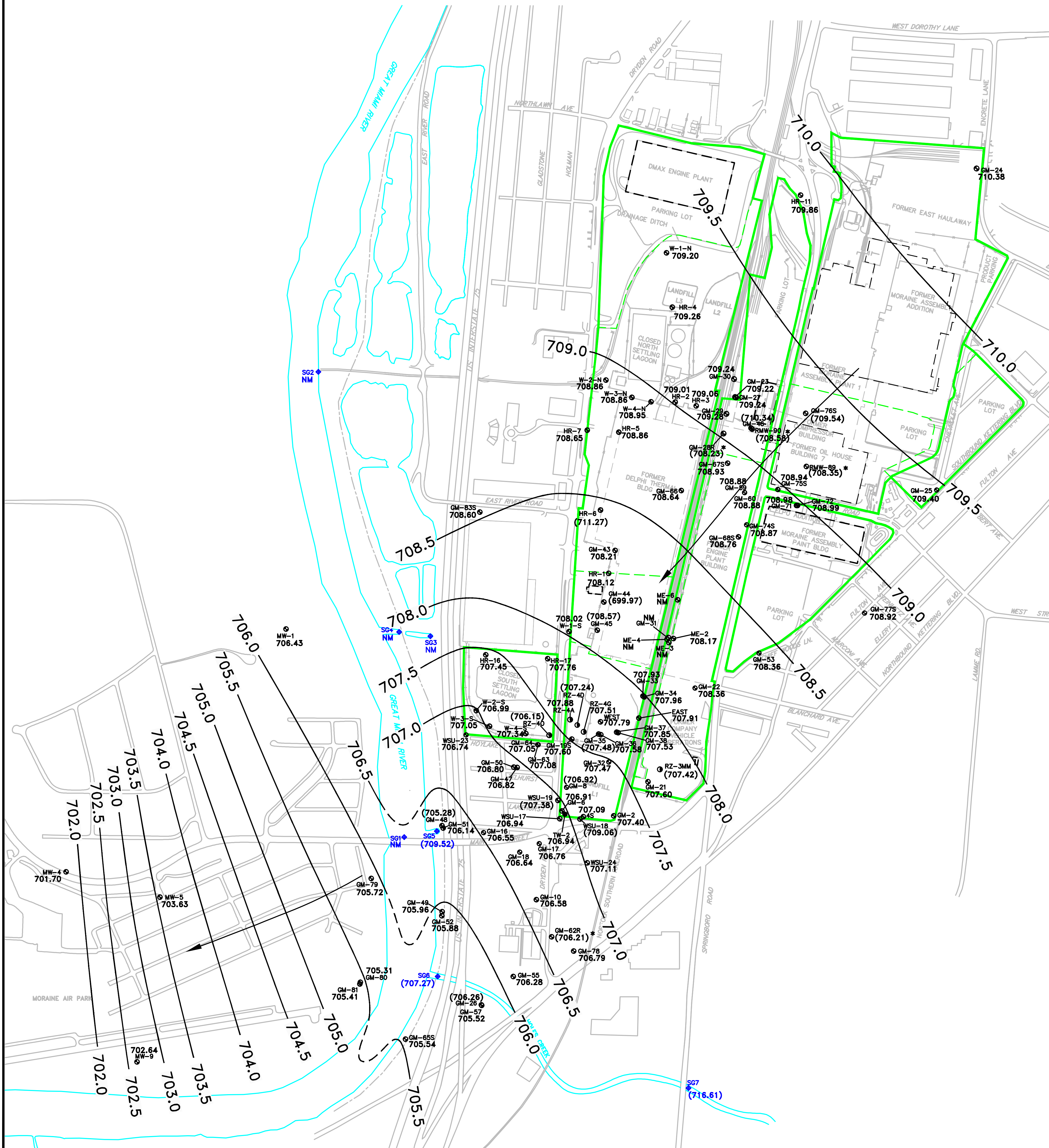
OH000294.2017

LOWER AQUIFER MONITORING WELLS FOR SITE-WIDE GROUNDWATER MONITORING

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-07.dwg LAYOUT: FIG - GW ELEV 120015 SHAL SAVED: 2/15/2017 2:36 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/16/2017 2:03 PM BY: SMITH, BOB



LEGEND

- MONITORING WELL (UPPER AQUIFER)
- INACTIVE RECOVERY WELL (TW-2)
- 707.56 STREAM GAUGE AND STREAM GAUGE MEASUREMENT; NOT USED FOR CONTOURING
- CARBON INTRODUCTION WELL
- RIVER LEVEE
- PROPERTY BOUNDRY
- PARCEL BOUNDARY
- 709.20 GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- 702.0 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 SEPTEMBER 13–14, 2016.
2. SURVEY OF ALL 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.

N

0 200 1000ft

RACER TRUST
MORAINE, OHIO

OH000294.2017

POTENTIOMETRIC SURFACE (UPPER AQUIFER) SEPTEMBER 2016

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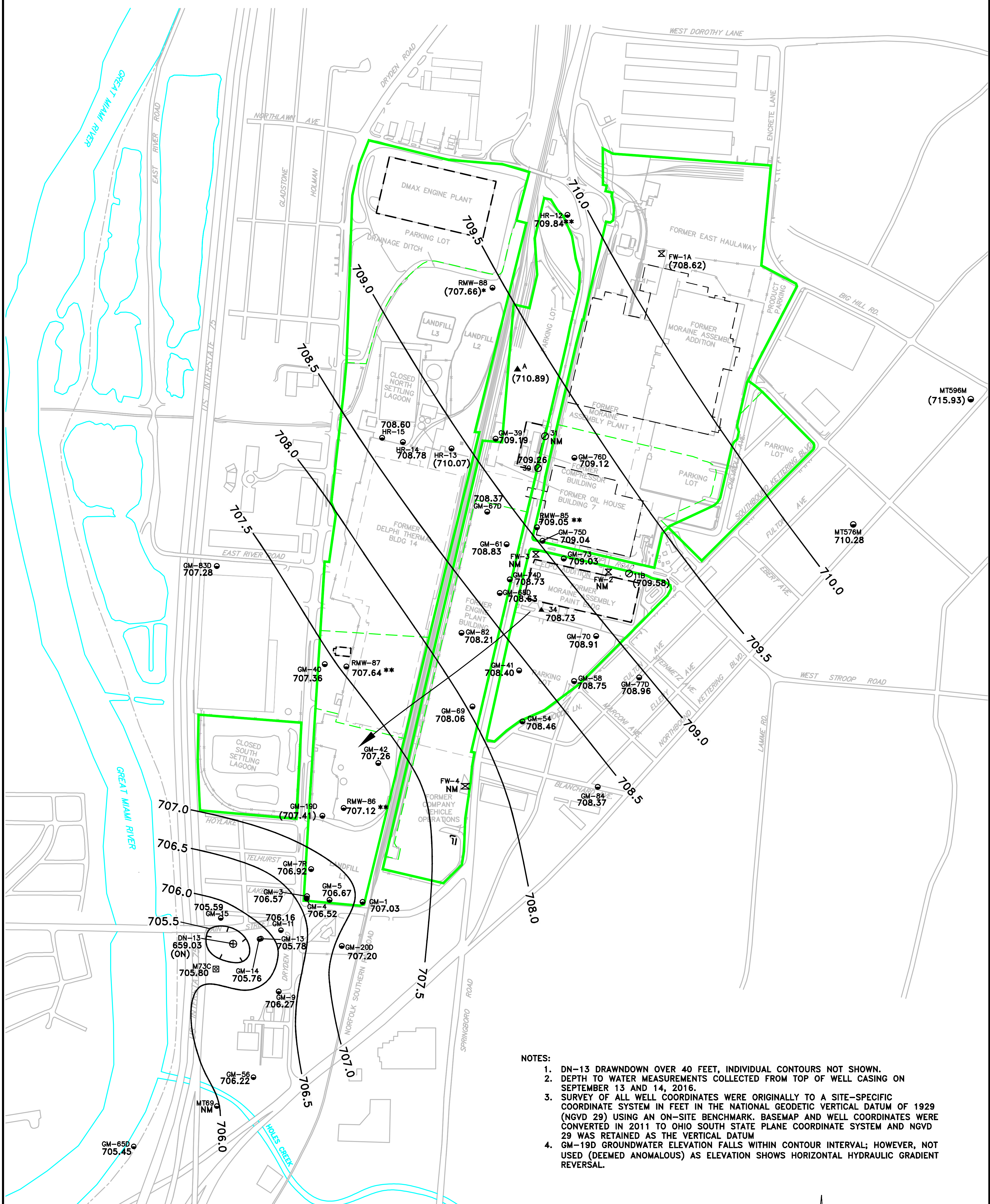
FIGURE
8

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-07.dwg LAYOUT: FIG - GW ELEV 120015 DEEP SAVED: 2/16/2017 2:12 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/22/2017 12:00 PM BY: SMITH, BOB



NOTES:

1. DN-13 DRAWNDOWN OVER 40 FEET, INDIVIDUAL CONTOURS NOT SHOWN.
2. DEPTH TO WATER MEASUREMENTS COLLECTED FROM TOP OF WELL CASING ON SEPTEMBER 13 AND 14, 2016.
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

* 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

706.0 — GROUNDWATER 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

0 100 850ft

RACER TRUST
MORAINE, OHIO

OH000294.2017

POTENTIOMETRIC SURFACE (LOWER AQUIFER) SEPTEMBER 2016

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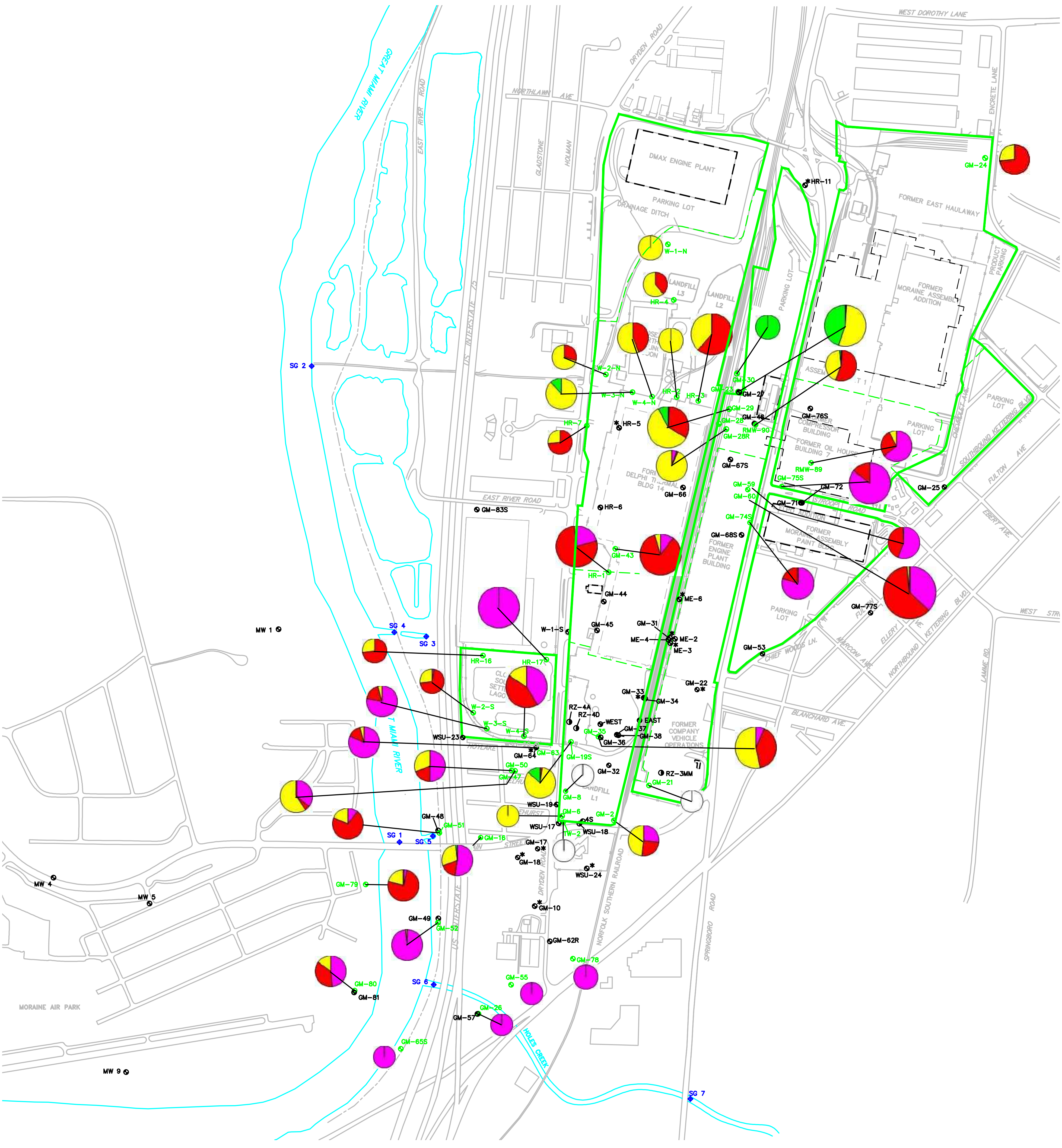
FIGURE 9



LEGEND

- MONITORING WELL (UPPER AQUIFER)
- INACTIVE RECOVERY WELL (USED FOR SITE-WIDE MONITORING)
- STREAM GAUGE
- CARBON INTRODUCTION WELL
- MONITORING WELL USED FOR SITE-WIDE MONITORING ON AN ANNUAL BASIS (UPPER AQUIFER)
- FORMER BUILDING FOOTPRINT
- RIVER LEVEE
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY

0 200 1000ft

- >1000 ug/L
- 101-1000 ug/L
- 11-100 ug/L
- 0-10 ug/L

PURPLE: TETRACHLOROETHENE
RED: TRICHLOROETHENE
YELLOW: cis-1,2-DICHLOROETHENE
GREEN: VINYL CHLORIDE

VOC VOLATILE ORGANIC COMPOUND
ug/L MICROGRAMS PER LITER

NOTES:

1. THE SIZE OF THE PIE CHART REPRESENTS MAGNITUDE OF THE TOTAL VOC CONCENTRATION IN EACH WELL IN MICROGRAMS PER LITER (ug/L).
2. THE PIE PORTIONS REPRESENT THE MOLAR CONCENTRATION IN MICROGRAMS PER LITER OF THE SELECT VOC CONSTITUENTS IN EACH WELL.

RACER TRUST
MORAINE, OHIO

OH000294.2017

SELECT VOC CONCENTRATIONS - UPPER AQUIFER

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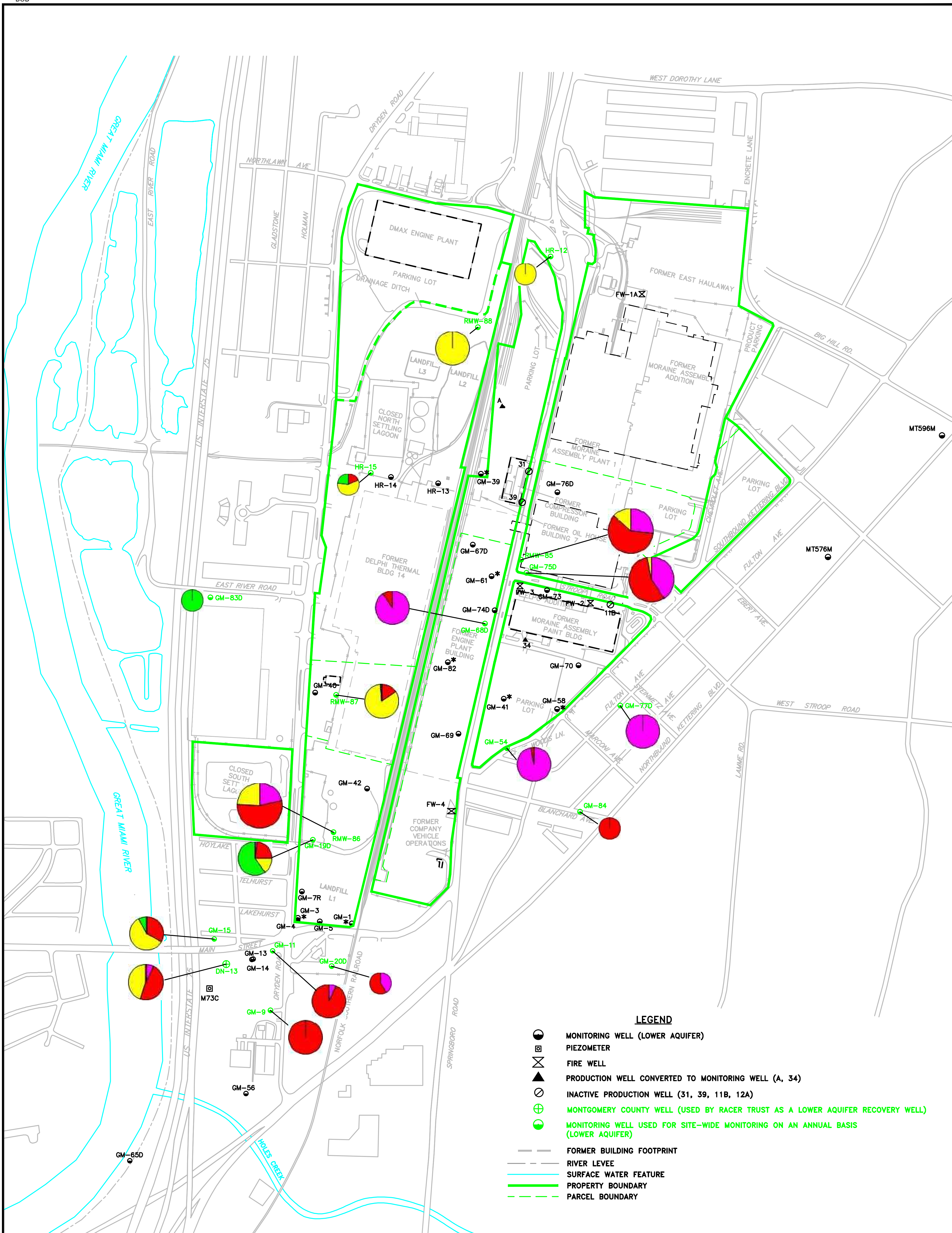
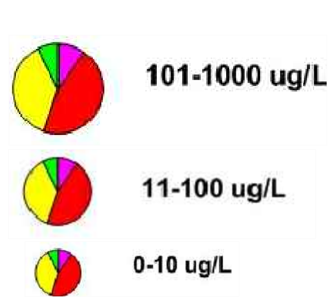
FIGURE
10





PURPLE: TETRACHLOROETHENE
RED: TRICHLOROETHENE
YELLOW: cis-1,2-DICHLOROETHENE
GREEN: VINYL CHLORIDE

VOC VOLATILE ORGANIC COMPOUND
ug/L MICROGRAMS PER LITER

NOTES:
1. THE SIZE OF THE PIE CHART REPRESENTS MAGNITUDE OF THE TOTAL VOC CONCENTRATION IN EACH WELL IN MICROGRAMS PER LITER (ug/L).
2. THE PIE PORTIONS REPRESENT THE MOLAR CONCENTRATION IN MICROGRAMS PER LITER OF THE SELECT VOC CONSTITUENTS IN EACH WELL.

0 200 700ft

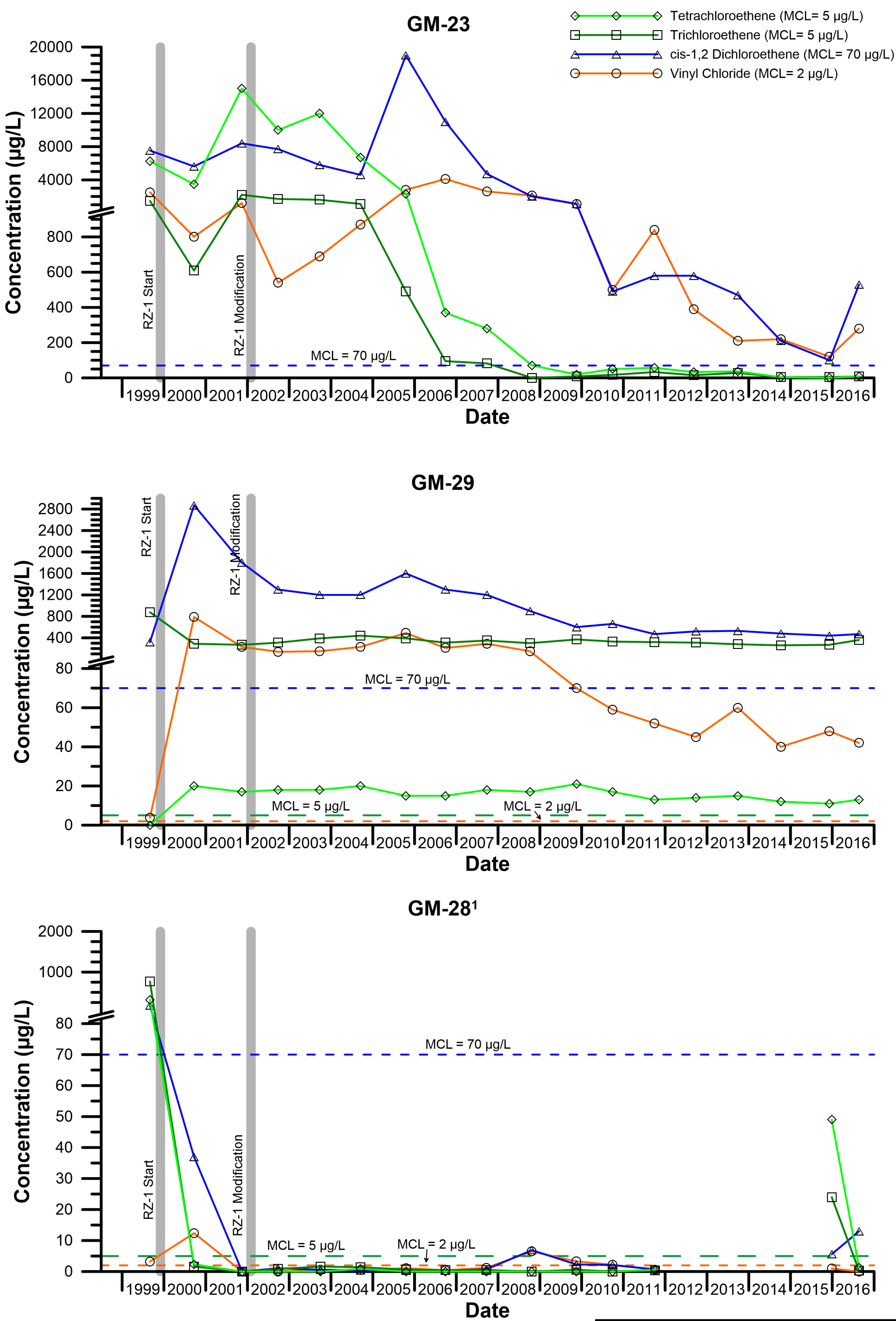
RACER TRUST
MORAINE, OHIO

OH000294.2017

SELECT VOC CONCENTRATIONS - LOWER AQUIFER

ARCADIS Design & Consultancy for natural and built assets

FIGURE 11



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

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MORAINE, OHIO
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RZ-1 AREA GROUNDWATER CONCENTRATION GRAPHS

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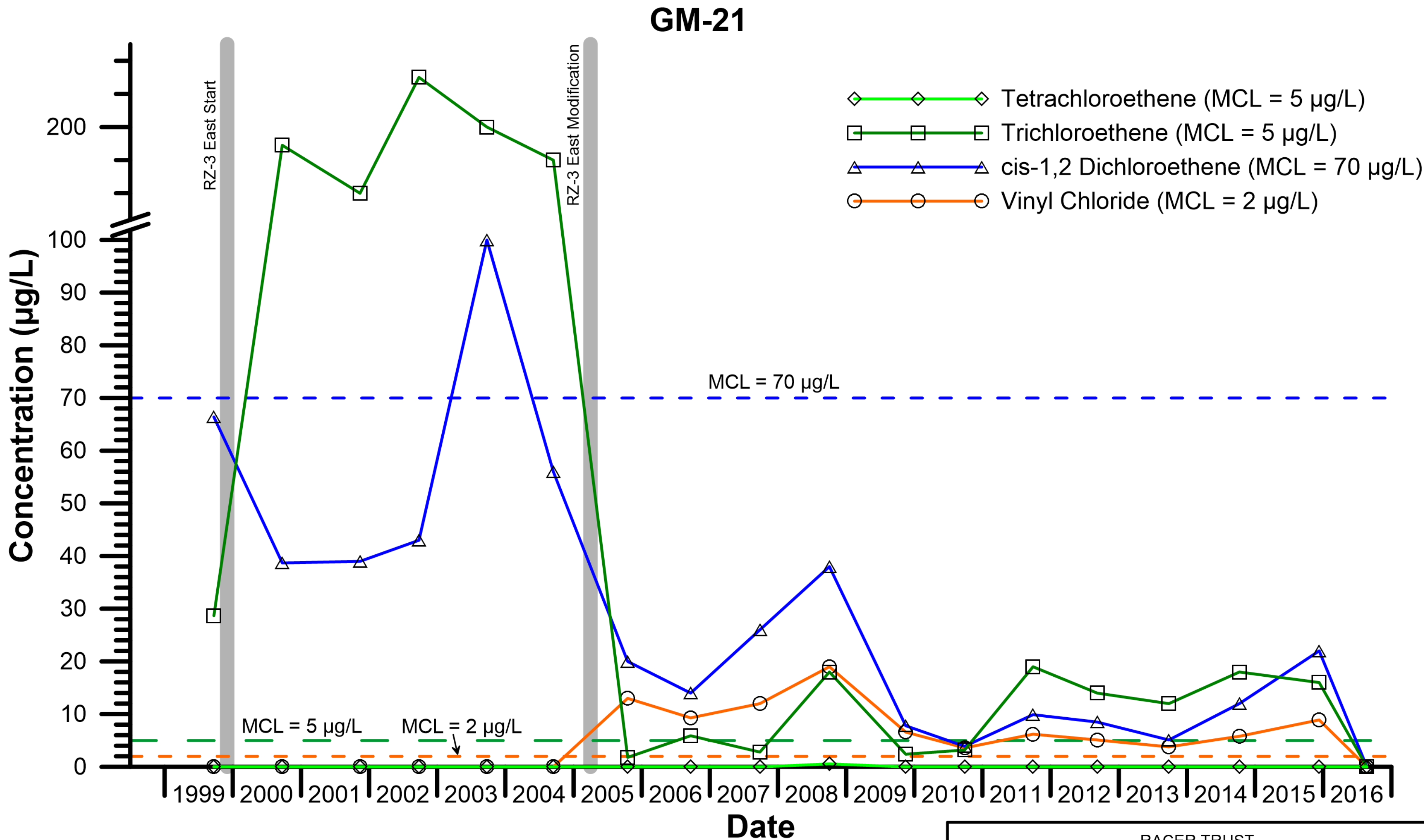
FIGURE
12



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

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RZ-3 EAST AREA GROUNDWATER CONCENTRATION GRAPH

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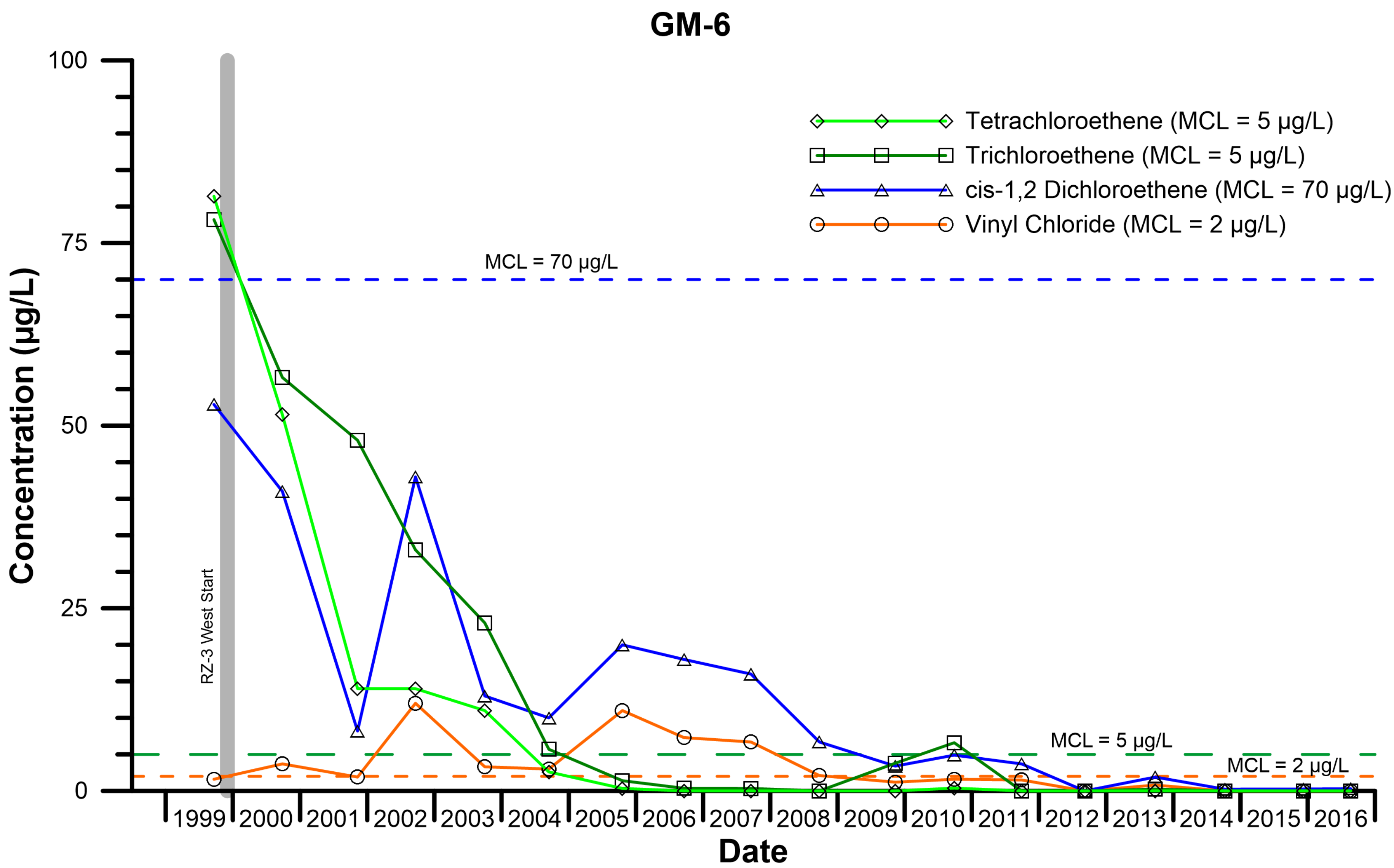
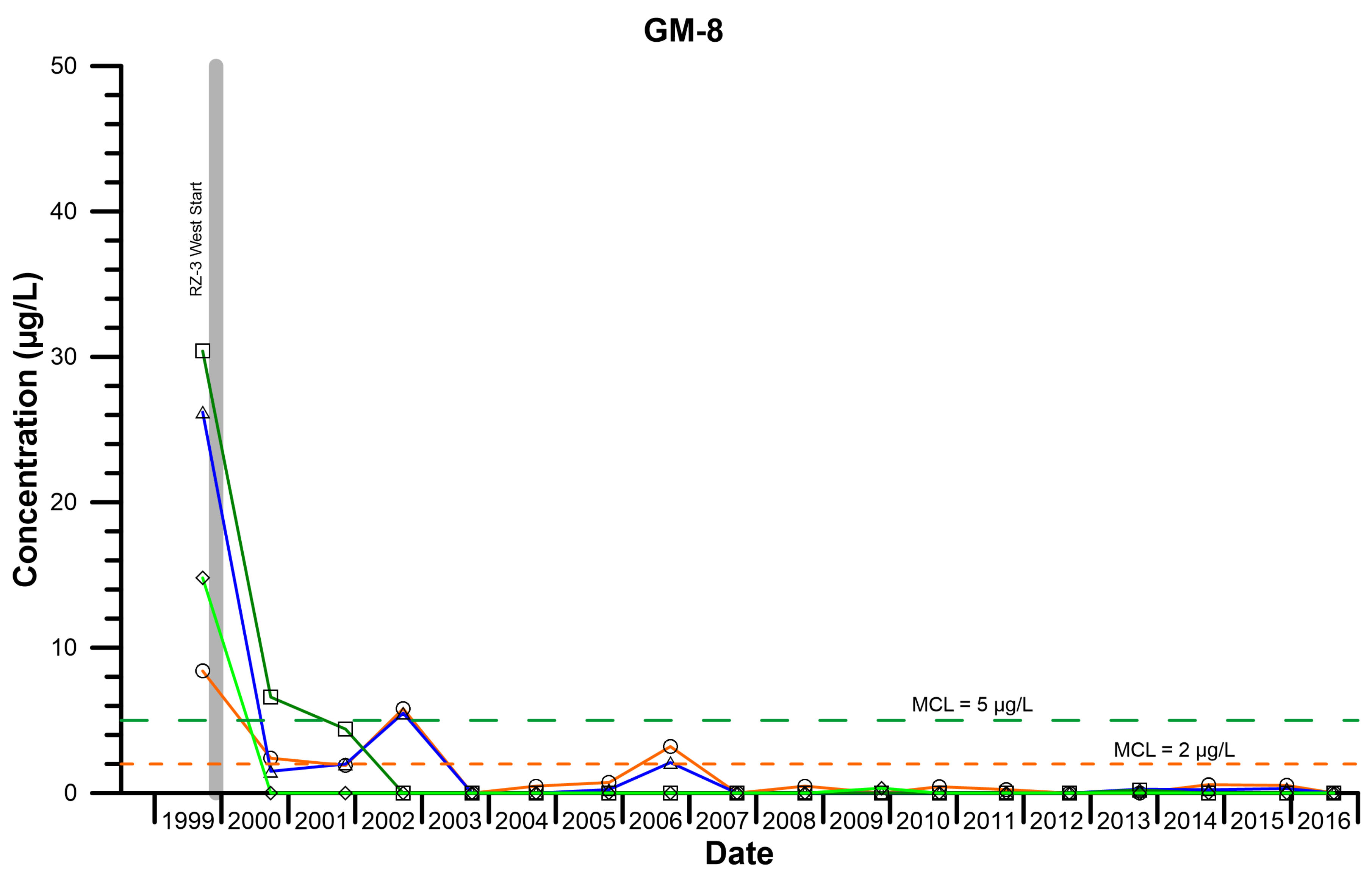
FIGURE
13





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

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RZ-3 WEST AREA GROUNDWATER CONCENTRATION GRAPHS

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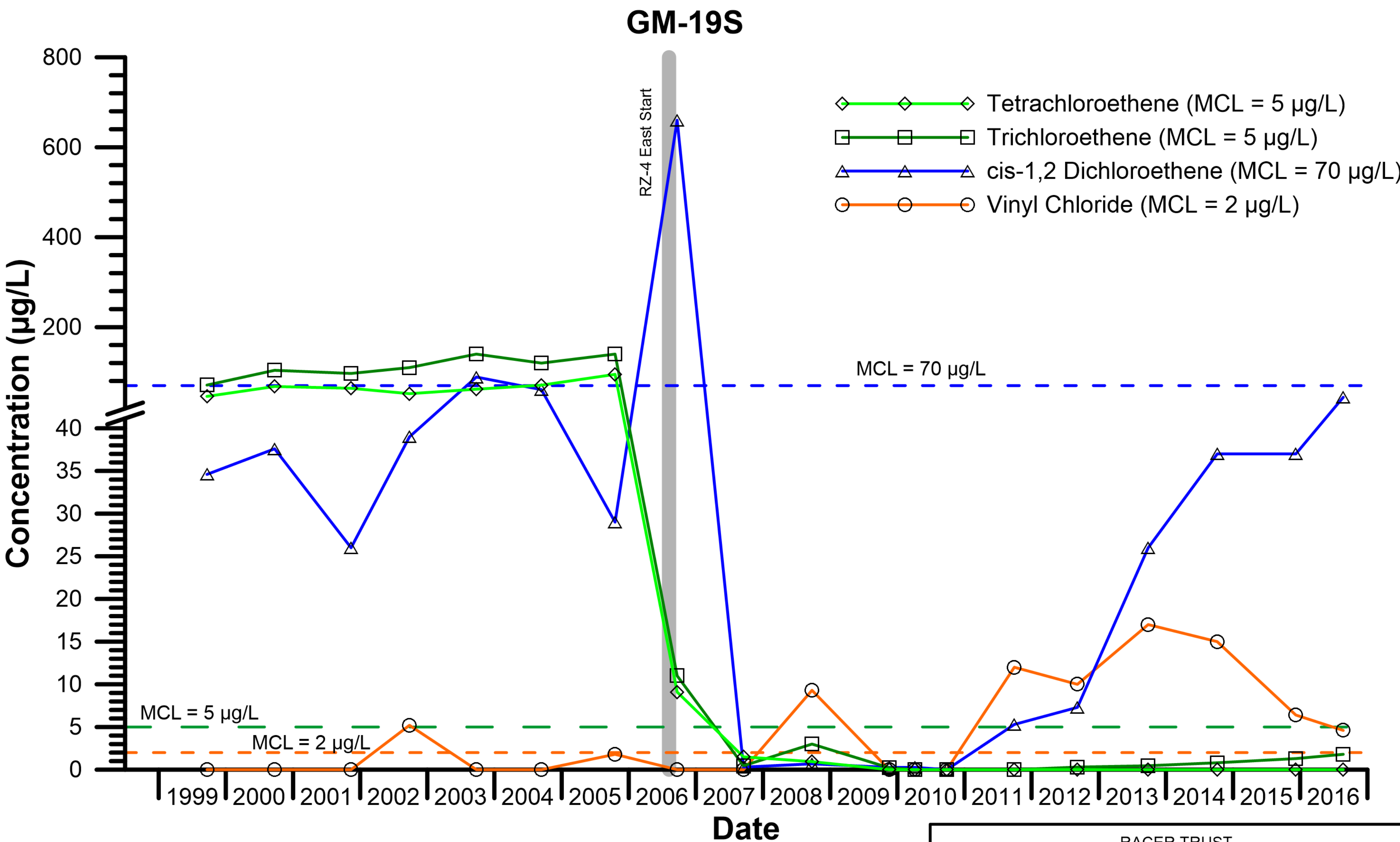
FIGURE
14



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µg/L = micrograms per liter

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RZ-4 EAST AREA GROUNDWATER CONCENTRATION GRAPH

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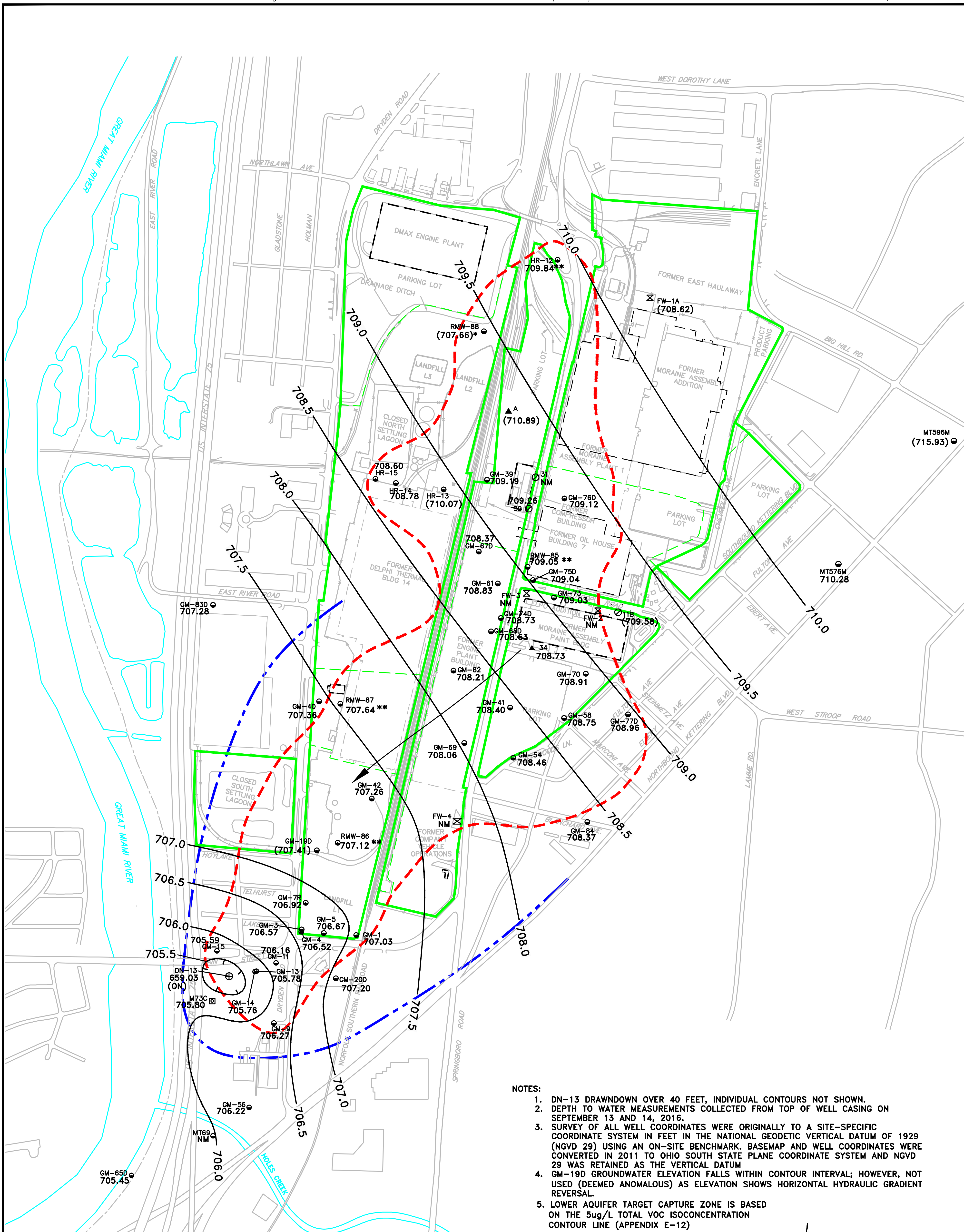
FIGURE
15



NOTES:
1. DN-13 DRAWNDOWN OVER 40 FEET, INDIVIDUAL CONTOURS NOT SHOWN.
2. DEPTH TO WATER MEASUREMENTS COLLECTED FROM TOP OF WELL CASING ON SEPTEMBER 13 AND 14, 2016.
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.
5. LOWER AQUIFER TARGET CAPTURE ZONE IS BASED ON THE 5ug/L TOTAL VOC ISOCONCENTRATION CONTOUR LINE (APPENDIX E-12)

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
- * 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
- 706.0 GROUNDWATER 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

0 100 850ft

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POTENTIOMETRIC SURFACE (LOWER AQUIFER) SEPTEMBER 2016 WITH INFERRED AND TARGET CAPTURE ZONES

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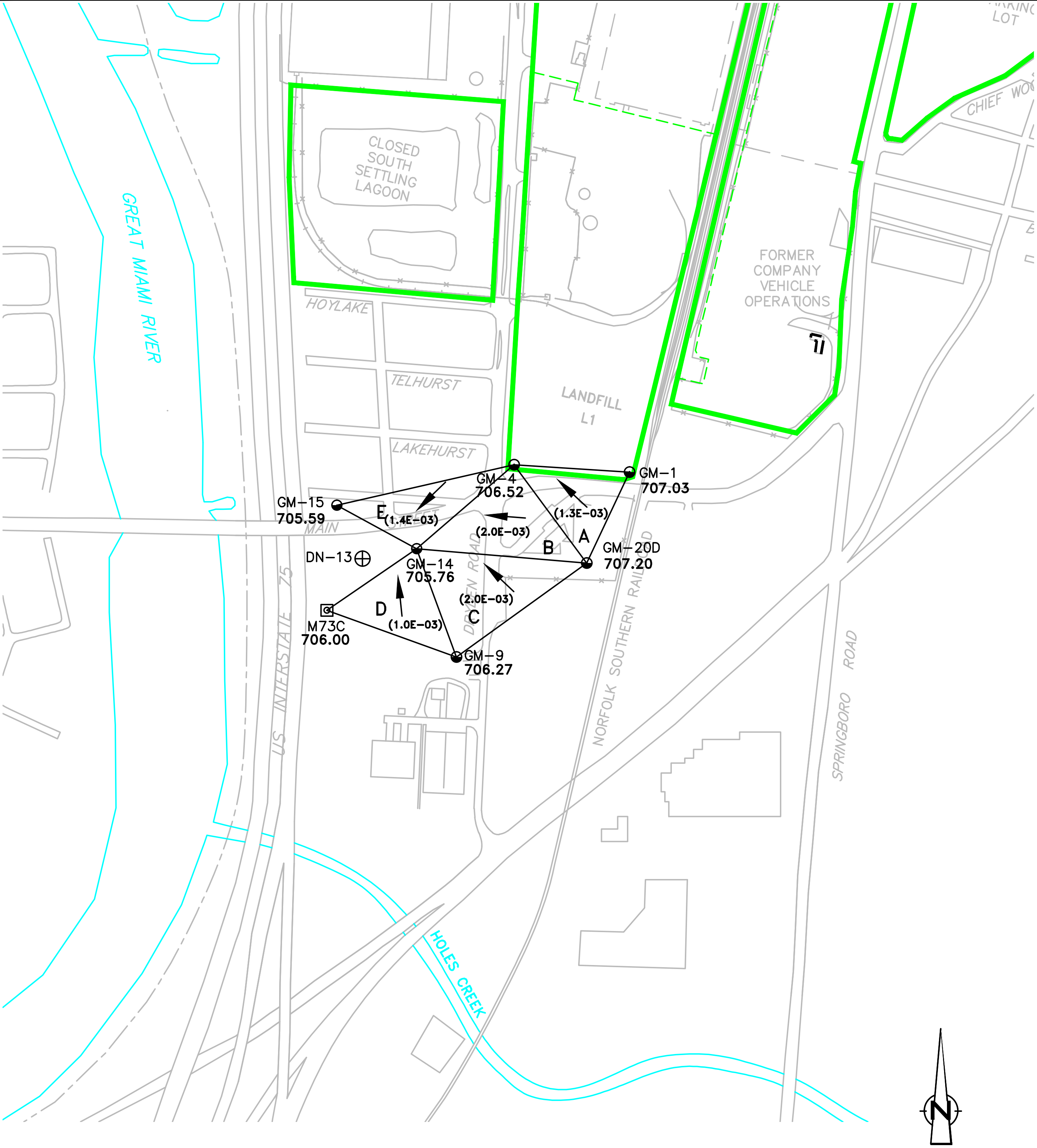
FIGURE 16



LEGEND

- GM−9 MONITORING WELL (LOWER AQUIFER)
- PIEZOMETER (LOWER AQUIFER)
- MONTGOMERY COUNTY WELL (LOWER AQUIFER CAPTURE WELL − NPDES OUTFALL DISCHARGE)
- RIVER LEVEE
- FORMER BUILDING FOOTPRINT
- SURFACE WATER FEATURE
- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- A TRIANGULAR IRREGULAR NETWORK (TIN) CELL ID
- (1.0E−0.3) GRADIENT DIRECTION AND MAGNITUDE (FOOT/FOOT)

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LOWER AQUIFER HORIZONTAL GRADIENTS SEPTEMBER 2016

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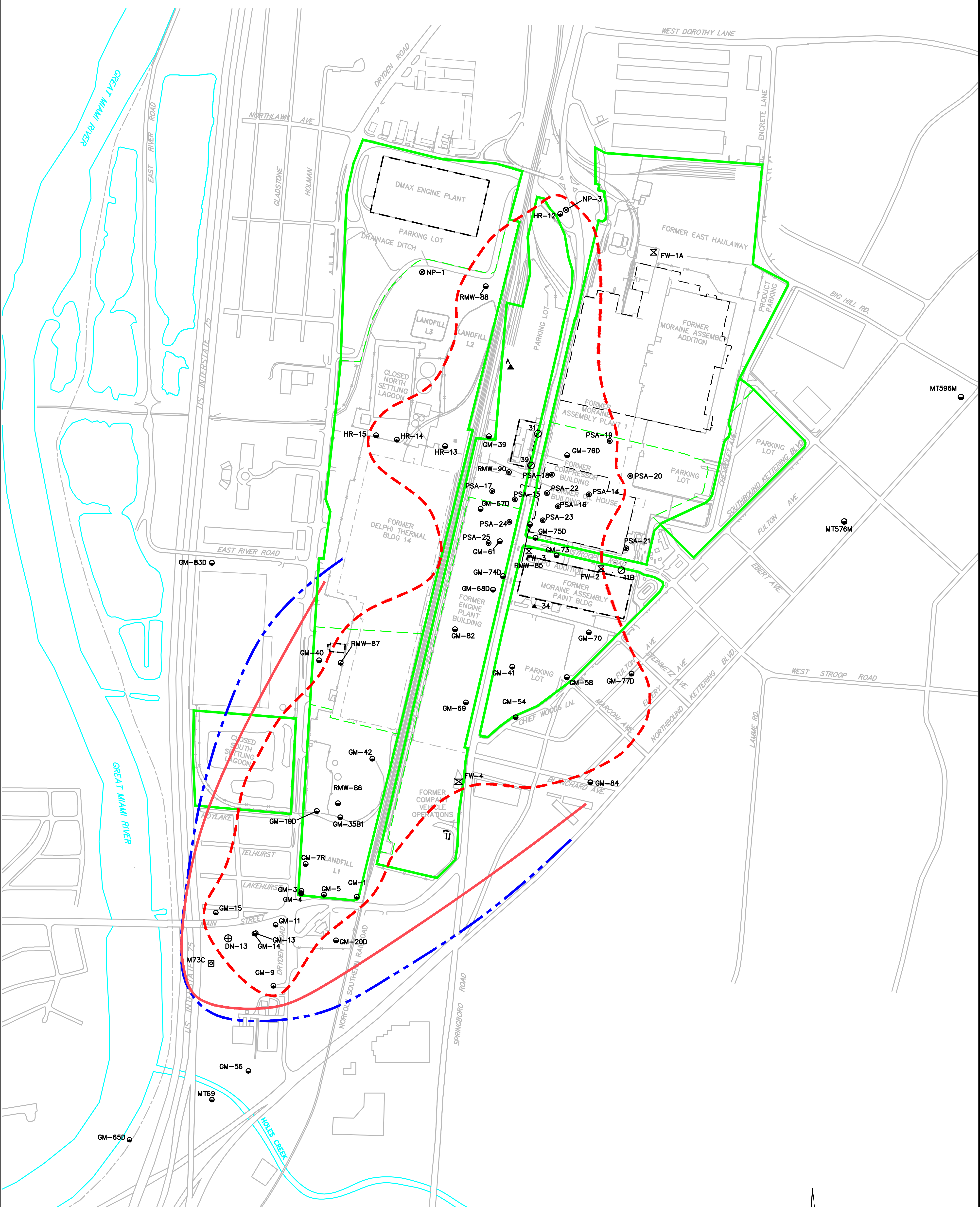
FIGURE
17

CITY:(COLUMBUS, OH) DIV/GROUP:(IM/DV) DB:(R. SMITH) LD:(Opt) PIC:(Opt) PM:(J. MANZO) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF* ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/16/2017 2:08 PM BY: SMITH, BOB
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-06.dwg LAYOUT: LETTERHORIZONTAL GRADIENT SAVED: 2/16/2017 2:00 PM
XREFS: MLCBASE MAP 2010 PROJECTNAME: ----

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-B.dwg LAYOUT: INTERPRETED CAPTURE ZONE LOWER SAVED: 2/16/2017 2:07 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/16/2017 2:10 PM BY: SMITH, BOB



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
- LOWER AQUIFER TARGET CAPTURE ZONE
- INFERRED CAPTURE ZONE
- INTERPRETED CAPTURE ZONE

0 100 850ft

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INTERPRETED CAPTURE ZONE

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FIGURE
18

APPENDIX A

In-Situ Reactive Zones Performance Results for 2016

Appendix A

In-Situ Reactive Zones
Performance Results for 2016

In-Situ Reactive Zones Performance Results

As described in Section 1.4.1 of the Site-Wide Groundwater Monitoring Report for 2016 (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 2016, 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 5 introduction wells (RZ-3RR through RZ-3VV) and cessation of introduction in 5 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). 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 on Tables A-7 through A-10. An evaluation of pertinent monitoring data is presented in the following sections.

The operational monitoring data collected, as indicated 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 the occasional 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 2016, 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 2016.

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-28, 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. All pH measurements collected in 2016 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.

Ongoing ERD injection activities were initiated in 1999 and were increased 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 50 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).

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 4.2 to 14 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 (4.5, 0.36, and 6.7 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, GM-29 (34, 42, and 42 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 (5.4 and 4.2 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 (1.9 mg/L) and the sulfate concentration at

GM-8 was 32 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 94 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 16 mg/L, which is significantly above the benchmark value of 0.2 mg/L. In addition, the sulfate concentration at GM-21 was 41 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 soil 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 (0.46 mg/L) remained above the background levels and is above the 0.2 mg/L benchmark. The sulfate concentration for GM-19S (39 mg/L) was above the benchmark value of 20 mg/L. The observation of elevated methane concentrations demonstrates that highly anaerobic conditions are being developed downgradient of RZ-4 west. These data will continue to be monitored in 2017 to determine if additional troubleshooting is warranted for the RZ-4 East injection program.

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-28 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 shows a comparison of degradation end-products ethane and ethene to VOCs per performance well based on molarity.

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 2016 within the RZ-1 treatment area. The total chlorinated VOC concentrations in GM-29 increased in 2016 compared to 2015 (805.1 micrograms per liter [ug/L] in 2015 and 919.0 ug/L in 2016). The 2016 concentrations were primarily associated with cis-1,2-DCE (470 ug/L), TCE (360 ug/L), vinyl chloride (42 ug/L) and PCE (13 ug/L), which were all above their respective MCLs. Concentrations of ethene and ethane were 17 ug/L and 160 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 14.9 ug/L in 2016 and were primarily associated with PCE (1.3 ug/L) and cis-1,2-DCE (13 ug/L). The concentrations of PCE and TCE were reported below their respective MCLs. The concentration of ethene and ethane were 0.027 ug/L and 0.29 ug/L, respectively. These concentrations demonstrate that transformation of the parent species to daughter products is ongoing and complete transformation is being achieved. Note that the total concentrations of VOCs in 2016 was significantly less than the concentrations observed in 2015 (80.5 ug/L). Monitoring well GM-28R was installed in 2015 and the elevated concentrations observed during that annual sampling event may be artificially elevated and not representative of ambient groundwater conditions.
- Total chlorinated VOC concentrations in GM-23 increased from 254.7 ug/L in 2015 to 853.3 ug/L in 2016. Total chlorinated VOC concentrations in GM-23 have increased to those similar to the concentrations reported in 2012 (764.6 ug/L). The 2016 concentrations were primarily associated with cis-1,2-DCE (530 ug/L), vinyl chloride (280 ug/L), PCE (8.0 ug/L), and TCE (7.6 ug/L), which were above their respective MCLs. These concentrations demonstrate that transformation of the parent species to daughter products is ongoing. This is confirmed by the observation of ethene and ethane (76 ug/L and 84 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 2016 (1.16 ug/L) compared to 2015 (1.27 ug/L). These data continue to document the effectiveness of the carbon injections at RZ-3 West. Concentrations of ethene and ethane were 0.015 J ug/L and 41 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 decreased in 2016 to levels below the laboratory reporting limit compared to 2015 (60.5 ug/L). The non-detect concentrations reported demonstrate the effectiveness of carbon injection at RZ-3 East. This is confirmed by the observation of ethene and ethane (7.0 ug/L and 6.1 ug/L, respectively), which demonstrates that complete transformation of residual VOC concentrations is being achieved (Figure A-2).
- Degradation of the chlorinated VOCs was sustained throughout 2016 downgradient of the RZ-4 East treatment area. The total VOC concentration reported in monitoring well GM-19S remained stable during 2016 (54.4 ug/L) when compared to the past three monitoring events (52.9 ug/L in 2013, 61.3 ug/L in 2014, and 48.5 ug/L in 2015). The 2016 concentrations were primarily associated with cis-1,2-DCE (44 ug/L). Concentrations of vinyl chloride (4.6 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; and
- 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 indication the quarterly injection frequency is appropriate for the site. However, the data will continue to be evaluated in 2017.

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 Constituents	Units	MCL[1]	GM-29 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
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
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
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
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
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**
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
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**
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
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
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**
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**
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
Total VOCs	**ug/L**		**1,256.3**	**1,078.4**	**1,914.6**	**4,028.8**	**2,972.1**	**2,846.5**	**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**	**891.5**	**922.2**	**933.9**	**825.6**	**805.1**	**919.0**

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
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
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
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
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
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**
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
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**
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
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
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**
Vinyl chloride	ug/L	**2**	**2,500**	**2,420 J**	**140 J**	**801**	**765**	**68**	**1200**	<500 U	**810**	**540**	**1700**	**690**
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
Total VOCs	**ug/L**		**17,853.3**	**21,568**	**11,959.2**	**10,556.6**	**14,183.8**	**21,533.8**	**26,800**	**23,300**	**21,010**	**19,940**	**22,000**	**20,090**

RZ-1	GM-23												
Constituents	9/14/04	10/17/05	9/28/06	9/27/07	10/23/08	11/17/09	9/29/10	9/30/11	9/7/12	9/27/13	10/10/14	12/8/15	8/22/16
Volatile Organic Compounds													
1,1,1-Trichloroethane	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<20 U	<25 U	<1.0 U	<10 U	<1.0 U	<2.0 U
1,1-Dichloroethane	<500 U	<560 U	<330 U	<200 U	<62 U	5.0 J	<22 U	<20 U	<25 U	2.6	8.4 J	15	8.6
1,1-Dichloroethene	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<20 U	<25 U	1.7	<10 U	0.47 J	1.1 J
Benzene	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<20 U	<25 U	0.28 J	<10 U	0.69 J	<2.0 U
cis-1,2-Dichloroethene	**4,600**	**19,000**	**11,000**	**4,700**	**2,000**	**1,100**	**490**	**580**	**580**	**470**	**210**	**100**	**530**
Ethylbenzene	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<20 U	<25 U	<1.0 U	<10 U	<1.0 U	<2.0 U
Tetrachloroethene	**6,700**	**2,300**	**370**	**280**	**71**	**19 J**	**50**	**57**	**33**	**37**	3.6 J	0.58 J	**8.0**
Toluene	<500 U	<560 U	<330 U	<200 U	<62 U	<20 U	<22 U	<20 U	<25 U	<1.0 U	<10 U	<1.0 U	<2.0 U
trans-1,2-Dichloroethene	< 250 U	<560 U	270 J	130 J	58 J	31	16 J	21	21 J	15	20	13	18
Trichloroethene	**1,100**	**490 J**	**95 J**	**82 J**	<62 U	**8.3 J**	**17 J**	**33**	**15 J**	**28**	4.1 J	5.0	**7.6**
Vinyl chloride	**870**	**2,800**	**4,100**	**2,600**	**2,100**	**1,100**	**500**	**840**	**390**	**210**	**220**	**120**	**280**
Xylenes	<500 U	<1100 U	< 670 U	<400 U	<120 U	<40 U	<44 U	<40 U	<50 U	<2.0 U	<20 U	<2.0 U	<4.0 U
Total VOCs	**13,270**	**24,590**	**15,835**	**7,792**	**4,229**	**2,263**	**1,073**	**1,531**	**1,039**	**764.6**	**466.1**	**254.7**	**853.3**

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**	**8/22/2016**
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
1,1-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
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
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
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
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
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
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
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
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
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
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
Total VOCs	**ug/L**		**1,292.4**	**1,461.5**	**2,817.1**	**90.5**	**32.5**	**352**	**11**	**11**	**8.6**	**15.66**	**19.98**	**12.89**	**7.75**	**7.63**	**6.71**	**5.97**	**7.61**	**16.9**	**11.48**	**10.4**	**5.12**	**80.5**	**14.90**

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**
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
1,1-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
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
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
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
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
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
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
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
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
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
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
Total VOCs	**ug/L**		**290**	**150.3**	**67.9**	**53.87**	**99.6**	**72**	**40.88**	**50.85**	**26.4**	**15**	**21.75**	**14.29**	**8.94**	**12.2**	**4.16**	**3.26**	**2.60**	**1.27**	**1.16**

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	8/22/2016
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
1,1-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
1,1-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
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
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
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
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
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
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
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
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
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
Total VOCs	**ug/L**		**371.6**	**275.1**	**180.1**	**91.8**	**174.2**	**76.04**	**42.9**	**56.33**	**43.25**	**52.06**	**11.3**	**17.28**	**21.67**	**11.5**	**2.50**	**3.61**	**0.59**	**0.26**	**0.29**

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**
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
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
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
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
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
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
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
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
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
Trichloroethene	ug/L	5	**28.7**	**283**	**311**	**189**	**169**	**158**	**160**	**28**	**210**	**230**	**79**	**200**	**180**
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
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
Total VOCs	**ug/L**		**168.9**	**353.3**	**403.3**	**263.5**	**238.2**	**223.3**	**225**	**39.21**	**298.3**	**316.7**	**233.3**	**342.8**	**277**

RZ-3 East			GM-21														
Constituents	**Units**	**MCL[1]**	**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**
Volatile Organic Compounds																	
1,1,1-Trichloroethane	ug/L	200	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
1,1-Dichloroethane	ug/L		3.4	8.6	6.4	18	15	22	20	16	18	9.5	16	12	<1.0 U
1,1-Dichloroethene	ug/L	7	<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
Benzene	ug/L	5	<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
cis-1,2-Dichloroethene	ug/L	70	20	14	8.2	26	38	7.8	3.9	9.9	8.5	5.1	12	22	<1.0 U
Ethylbenzene	ug/L	700	<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
Tetrachloroethene	ug/L	5	<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
Toluene	ug/L	1000	<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
trans-1,2-Dichloroethene	ug/L	100	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
Trichloroethene	ug/L	5	1.8	**5.9**	0.8 J	2.8	**18**	2.4	3.2	**19**	**14**	**12**	**18**	**16**	<1.0 U
Vinyl chloride	ug/L	2	**13**	**9.3**	**4.7**	**12**	**19**	**6.6**	**3.6**	**6.2**	**5.1**	**3.8**	**5.8**	**8.9**	<1.0 U
Xylenes	ug/L	10000	<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
Total VOCs	**ug/L**		**64.5**	**54.3**	**29.80**	**69.8**	**104**	**45.60**	**34.45**	**54**	**47.3**	**31.5**	**53.4**	**60.5**	**0.0**

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

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**
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
1,1-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
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
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
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
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
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
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
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
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
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**
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
Total VOCs	**ug/L**		**178.7**	**234.1**	**231.1**	**231.8**	**239.1**	**199.5**	**213.5**	**221.5**	**285.9**	**316.8**	**278.4**	**290.0**	**707**	**13**	**27.4**	**12.9**	**10.3**	**10**	**28.4**	**26.8**	**52.9**	**61.3**	**48.5**	**54.4**

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**
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Temperature	°C	17.8	16.9	17.97	17.64	20.04	20.47	16.42	17.13	19.33	17.63	18.23	16.81	16.4	18.33	20.24	21.74	16.8	16.69	18	16.78	16.50	18.00	21.1	21.0	24.0	17.2	16.7	10.9

NOTES:
< - Constituent not detected above laboratory reporting limit.
(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
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		GM-23																				
Constituents	**Units**	**9/2/99**	**2/21/00**	**5/31/00**	**3/20/01**	**6/13/02**	**9/26/02**	**5/22/03**	**9/23/03**	**9/14/04**	**10/17/05**	**9/28/06**	**9/27/07**	**10/23/08**	**11/17/09**	**9/29/10**	**9/30/11**	**9/7/12**	**9/27/13**	**10/10/14**	**12/5/15**	**8/22/16**
Inorganics & TOC																						
Nitrate	mg/L	0.08	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0 U
Nitrite	mg/L	3.83	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	<0.30 U	0.94	2.84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.550 H	NA
Manganese (Total)	mg/L	4.71	0.887	0.121	0.469	1.5 J	1.0 J	1.5 J	1.6 J	1.3 J	0.79	1.5	1.4 J	0.89	0.539	0.508	0.57	0.410 B	0.450	0.250 B	0.14	0.18
Manganese (Dissolved)	mg/L	0.346	0.841	0.101	0.311	1.3 J	0.68 J	1.5 J	1.7 J	1.2 J	0.81	1.5	1.3 J	0.90	0.516	0.492	0.5	0.380 B	0.440	0.240 B	0.22	0.17
Iron (Total)	mg/L	13.6	0.53	0.18	0.48	0.16 J	0.63	0.50	0.14	0.11	30.7	13.6	10.8	10.1	5.51	5.72	7.5	4.8	3.6	4.0 B	4.2	4.5
Iron (Dissolved)	mg/L	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	<0.10 U	34.2	13.2	10	10	5.21	5.33	6	4.7	3.7	4.1 B	5.8	4.6
Iron (Ferrous)	mg/L	4.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	72	650	8040	1440	920	810	310 J	650	430 J	120	850	590	490	130	160	200	74	120	34	15	34
Sulfide	mg/L	<4.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.67 B	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.73 J	<1.0 U	<1.0 U	<1.0 U	<1.0 U	0.59 J	<1.0 U	<1.0 U
Total Organic Carbon	mg/L	19	25	19	10.8	15 J	15	15	13	10 J	360	11	9.0	9.0	7.0	9.0	6.6	7.2	6.4	7.7	6.9 B	6.2
Chloride	mg/L	118	143	85	232	180	190	220	140 J	220	260	220	210	220	100	43	65	97 B	39	150 B	180 B	120
Permanent Gases																						
Carbon Dioxide	mg/L	88.47	264.8	323.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	0.96	1.56	17.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	20.22	13.75	3.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	mg/L	0.12	0.72	0.021	0.78	1.6	2.1	2.7	1.8	1.5	1.3	0.91	0.64	1.9	1.7	2.5	2.0	2.6	0.84	5.5	5.4	4.5
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
Light Hydrocarbon Scan																						
Ethane	ng/L	6,878	14,644	1,037	11,000	25,000	32,000	44,000	23,000	17,000	16,000	12,000	7,100	21,000	31,000	36,000	25,000	71,000	16,000	100,000	88,000	84,000
Ethene	ng/L	580,916	439,458	569	260,000	230,000	230,000	1,200,000	270,000	260,000	500,000	900,000	370,000 J	960,000	2,100,000	1,700,000	230,000	74,000	16,000	74,000	140,000	76,000
Field Parameters																						
pH	S.U.	6.80	6.62	6.31	6.64	6.81	6.76	5.59	6.73	7.04	5.66	6.69	6.34	7.74	6.80	6.89	6.52	9.13	6.76	6.98	7.43	6.89
Specific Conductivity	umhos/cm	1,160	2,856	6,720	3,448	2,290	2,390	1,683	2,258	2,130	2,570	2,740	2,470	1,465	1,184	1,395	1,812	1,310	1,228	1,321	1,530	1,330
Dissolved Oxygen	mg/L	0.65	0.78	10.48	8.38	4.23	0.42	1.76	0.85	0.00	0.00	0.40	0.44	0.11	0.16	0.23	0.54	2.83	0.40	0.23	0.00	0.40
Redox Potential	mV	122.2	158.7	194.2	160.4	346.5	215.6	247.9	198.8	57	-108	-108	-91	189	-90.1	-104.2	-52	-161	-49	-63.8	-79.0	-114.0
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	17.40	22.5	24.7	16.7	16.7	18.5

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		GM-28																					GM-28R(1)	
Constituents	**Units**	**9/1/99**	**2/23/00**	**5/26/00**	**9/21/00**	**3/20/01**	**6/26/01**	**11/15/01**	**12/12/01**	**7/21/02**	**9/24/02**	**5/23/03**	**10/1/03**	**4/30/04**	**9/15/04**	**10/18/05**	**9/27/06**	**9/20/07**	**10/22/08**	**11/16/09**	**9/28/10**	**10/5/11**	**12/28/15**	**8/22/2016**
Inorganics & TOC																								
Nitrate	mg/L	0.08	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U
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
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
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
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
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
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
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
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
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
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
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
Permanent Gases																								
Carbon Dioxide	mg/L	41.52	63.57	16.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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
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
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
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
Light Hydrocarbon Scan																								
Ethane	ng/L	750	493	865	1,198	42,000	39,000	91,000	98,000	420,000	300,000	310,000	230,000	160,000	150,000	81,000	73,000	72,000	52,000	73,000	53,000	14,000	1,200	290
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
Field Parameters																								
pH	S.U.	7.02	6.92	7.01	7.18	7.1	6.64	6.50	7.45	6.84	7.24	6.86	6.80	NA	6.85	5.47	7.08	6.72	6.49	7.04	7.16	NA	6.79	6.95
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
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
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
Temperature	°C	16.4	18.48	19.24	20.21	18.93	19.04	19.24	18.92	20.44	18.68	16.88	17.97	NA	16.2	15.9	16.33	17.1	16.38	16.65	16.56	NA	16.79	18.1

NOTES:
< - Constituent not detected above laboratory reporting limit.
(1) Monitoring Well GM-28R was installed on December 21, 2015 as a replacement for well GM-28.
B - Blank Contamination.
°C - Degrees Celsius.
Carbon source introductions began in December 1999.
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**
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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																									
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
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
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
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
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
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
Temperature	°C	19.27	19.72	23.48	19.27	19.3	18.84	18.62	20.83	19.81	19.31	18.47	17.20	17.00	17.70	16.70	18.71	16.30	16.79	18.77	21.5	18.36	18.48	15.57	17.96

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

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

RZ-3 West		GM-8																
Constituents	**Units**	**3/6/98**	**9/20/99**	**9/20/02**	**12/9/03**	**9/14/04**	**10/19/05**	**9/19/06**	**9/18/07**	**9/23/08**	**11/16/09**	**9/27/10**	**9/30/11**	**9/6/12**	**9/26/13**	**10/7/14**	**12/5/15**	**8/22/16**
Inorganics & TOC																		
Nitrate	mg/L	<4.4 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U
Nitrite	mg/L	<0.033 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia	mg/L	1.69	1.95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100 UH	NA
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
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
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
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
Iron (Ferrous)	mg/L	<0.2 U	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	59	54	59	<5.0 U	13 J	27	24	49	32	23	22	24	27	22	28	32	32
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
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
Chloride	mg/L	248	216	180	180 J	190	260	320	360 J	250	230	230	270	190 B	150	150	170 B	130
Permanent Gases																		
Carbon Dioxide	mg/L	15.8	9.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen	mg/L	1.1	0.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen	mg/L	19.7	25.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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
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
Light Hydrocarbon Scan																		
Ethane	ng/L	370	1,134	13,000	12,000	18,000	17,000 J	7,200	10,000	22,000	11,000	19,000	26,000	10,000	12,000	12,000	23,000	41,000
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
Field Parameters																		
pH	S.U.	7.7	7.98	8.18	7.2	7.76	6.45	7.31	7.21	8.1	7.86	7.89	7.81	10.32	7.92	7.44	7.42	7.33
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
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
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
Temperature	°C	17.53	19.09	19.2	18.17	16.60	16.30	18.10	17.00	17.60	16.00	16.51	21.10	20.34	15.70	15.60	15.89	18.74

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

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

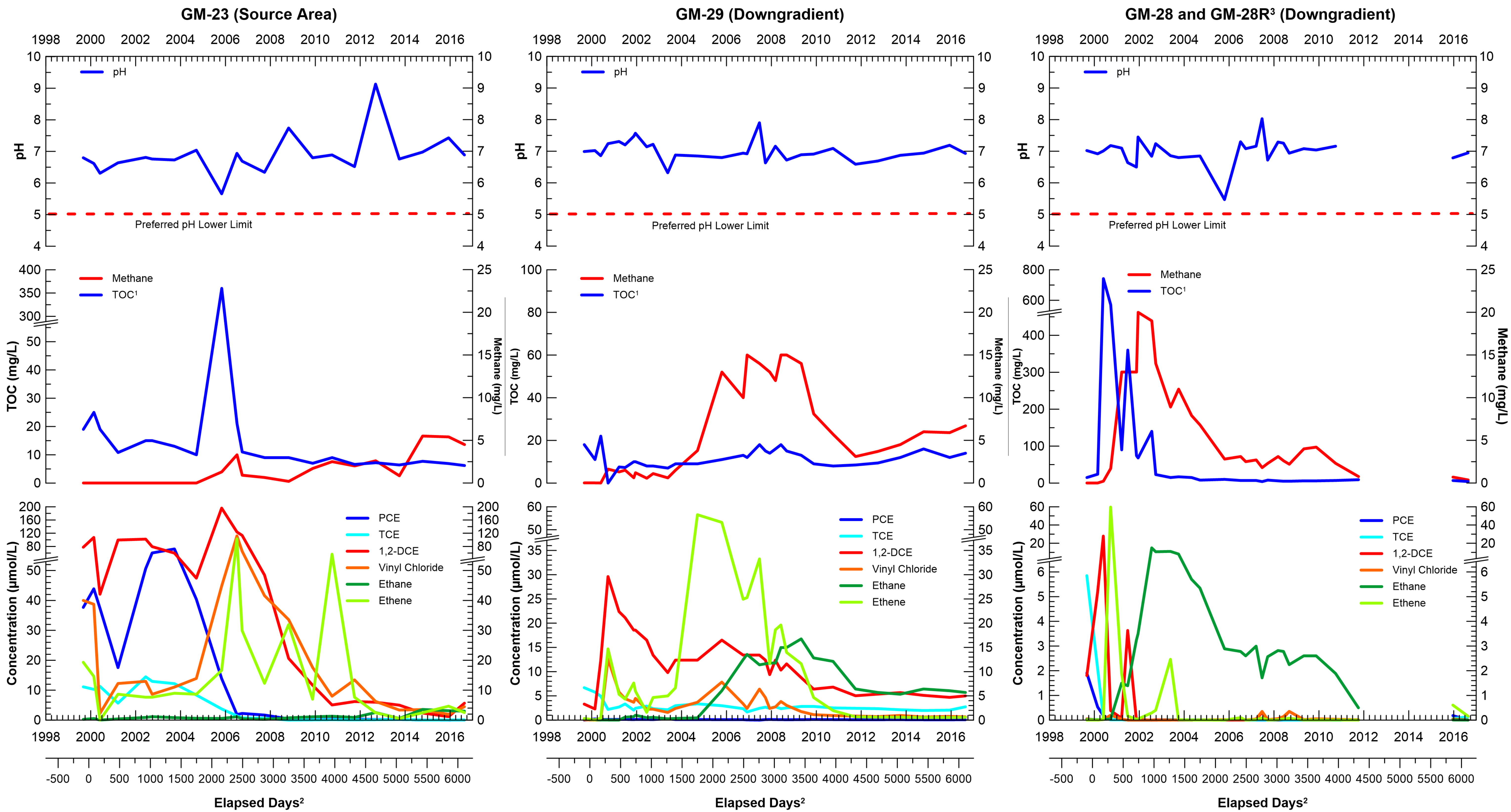
RZ-3 East		GM-21															
Constituents	**Units**	**9/22/99**	**2/23/00**	**5/26/00**	**9/22/00**	**3/19/01**	**11/13/01**	**12/11/01**	**10/3/08**	**11/16/09**	**9/28/10**	**9/29/11**	**9/7/12**	**9/26/13**	**10/9/14**	**12/11/15**	**8/22/16**
Inorganics & TOC																	
Nitrate	mg/L	0.0	0.0	0.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1 U
Nitrite	mg/L	0.0	0.0	0.0	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
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
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
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
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
Iron (Ferrous)	mg/L	0.4	0.0	0.0	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
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
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
Chloride	mg/L	136	145	126	129	165	140	150	240	220	230	300	240 B	290	310 B	300 B	240
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
Oxygen	mg/L	1.41	0.99	1.89	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
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
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
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
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
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
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
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
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
Temperature	°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

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

Table A-10
Bioattenuation Parameter Results for Groundwater Samples Collected in 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**
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	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
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
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
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
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
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
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

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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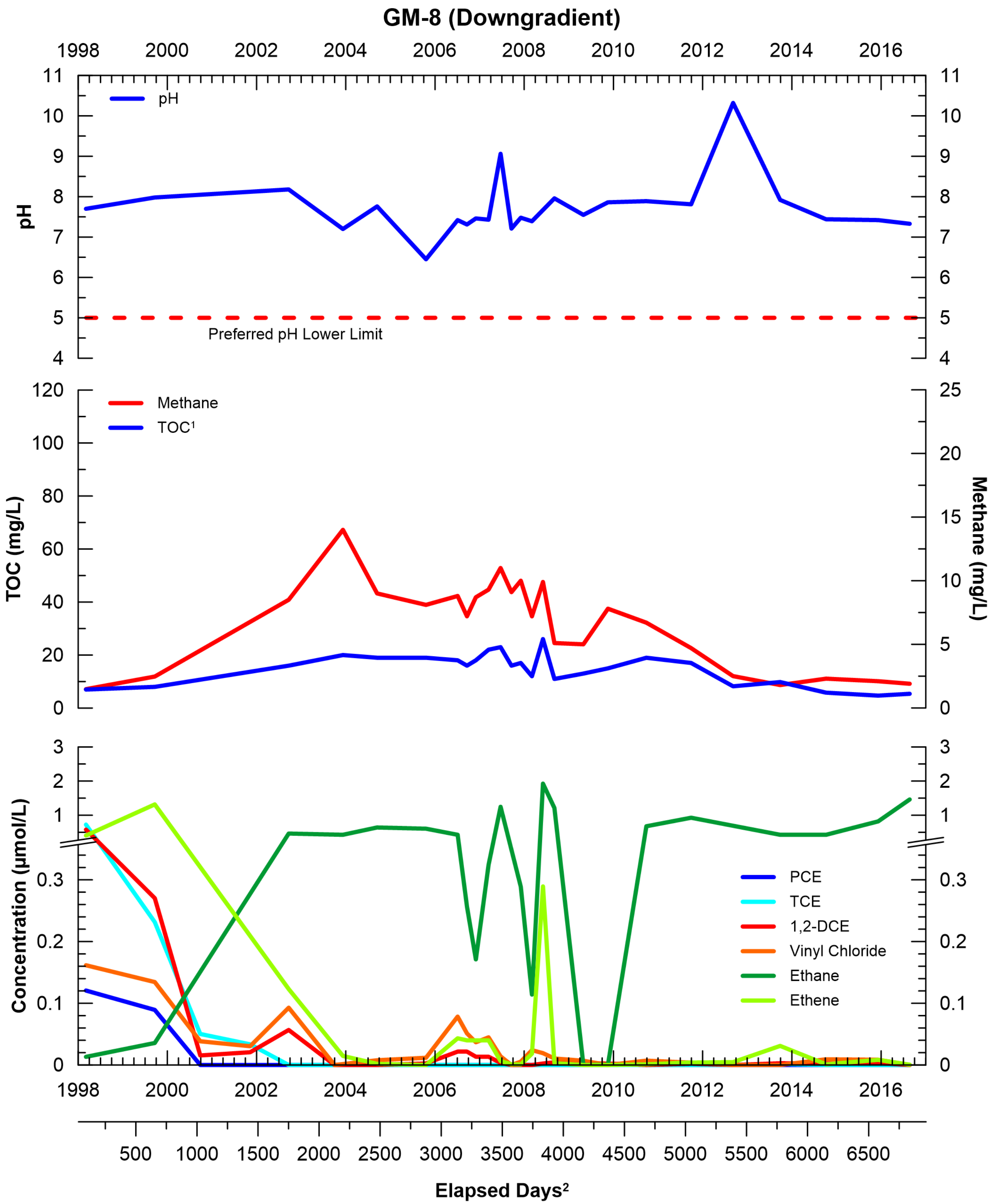
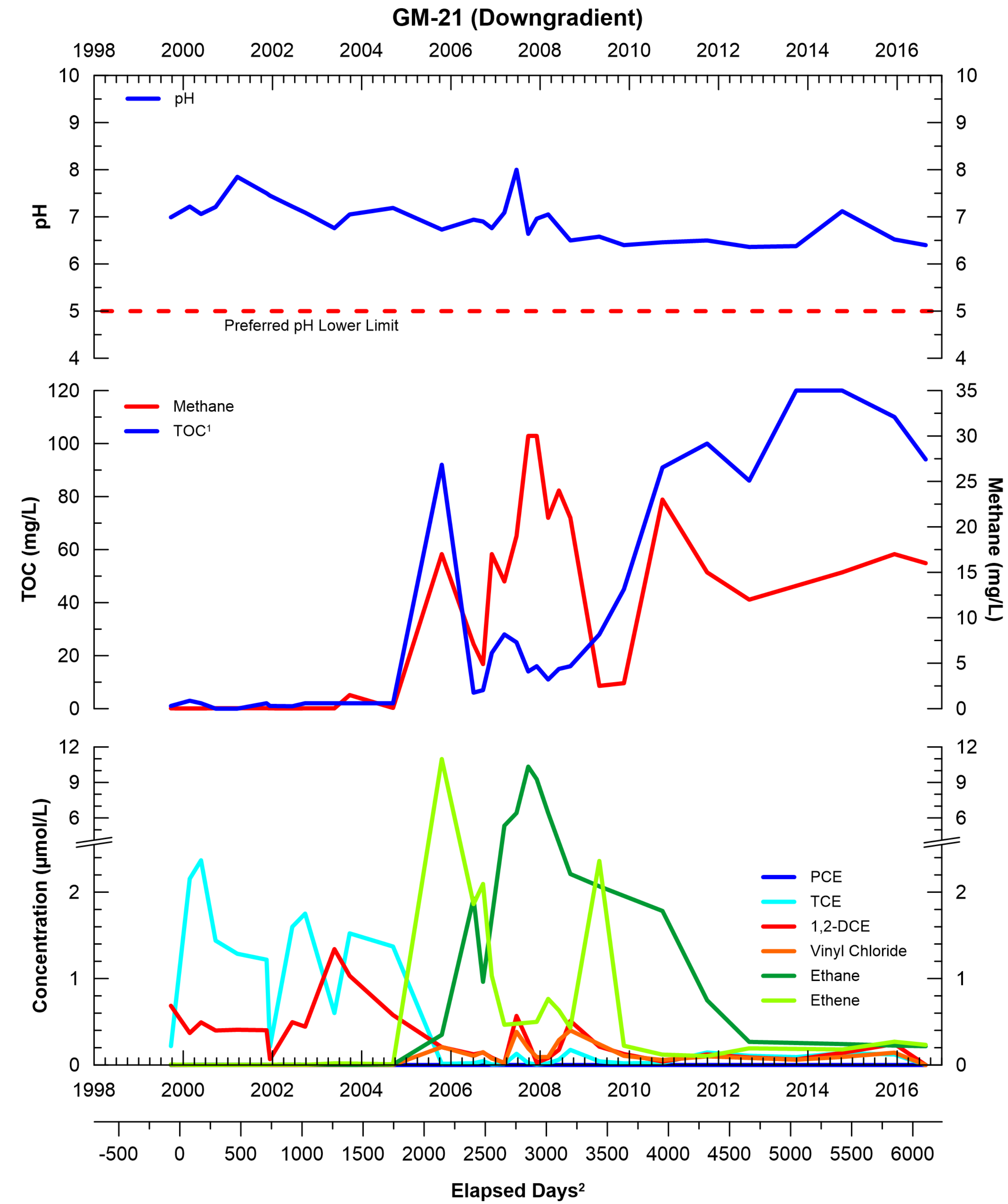
MORAINE, OHIO
OH000294.2017

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

ARCADIS Design & Consultancy for natural and built assets

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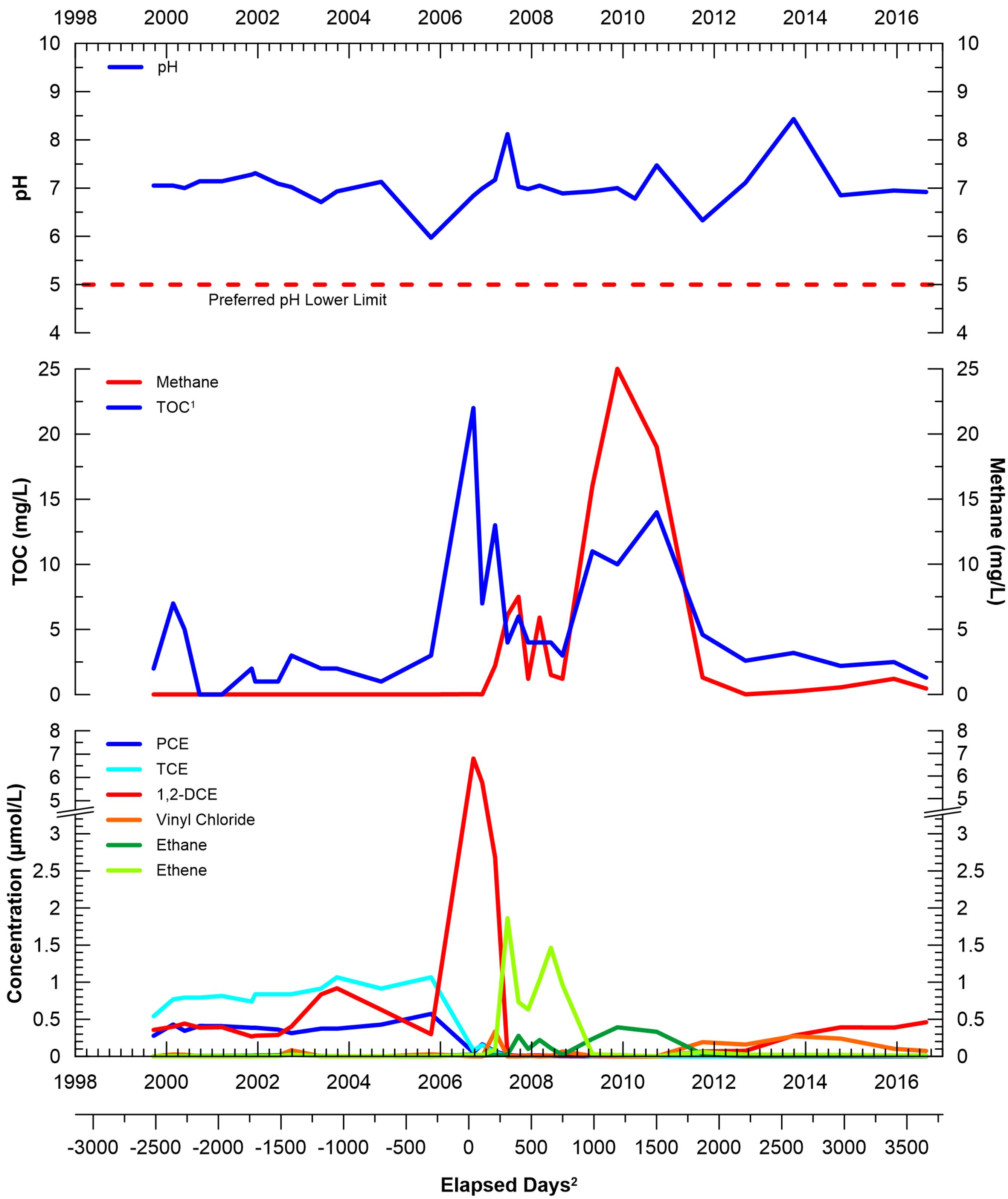
RZ-3 WEST/EAST ERD ANALYSIS
GM-8 (WEST), GM-21(EAST)

ARCADIS Design & Consultancy for natural and built assets

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.

RACER Trust
MORAINE, OHIO
OH000294.2017

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

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A-3

G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\METHANE-UPPER-082216.dwg LAYOUT: 1 SAVED: 2/17/2017 7:14 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:20 AM BY: SMITH, BOB

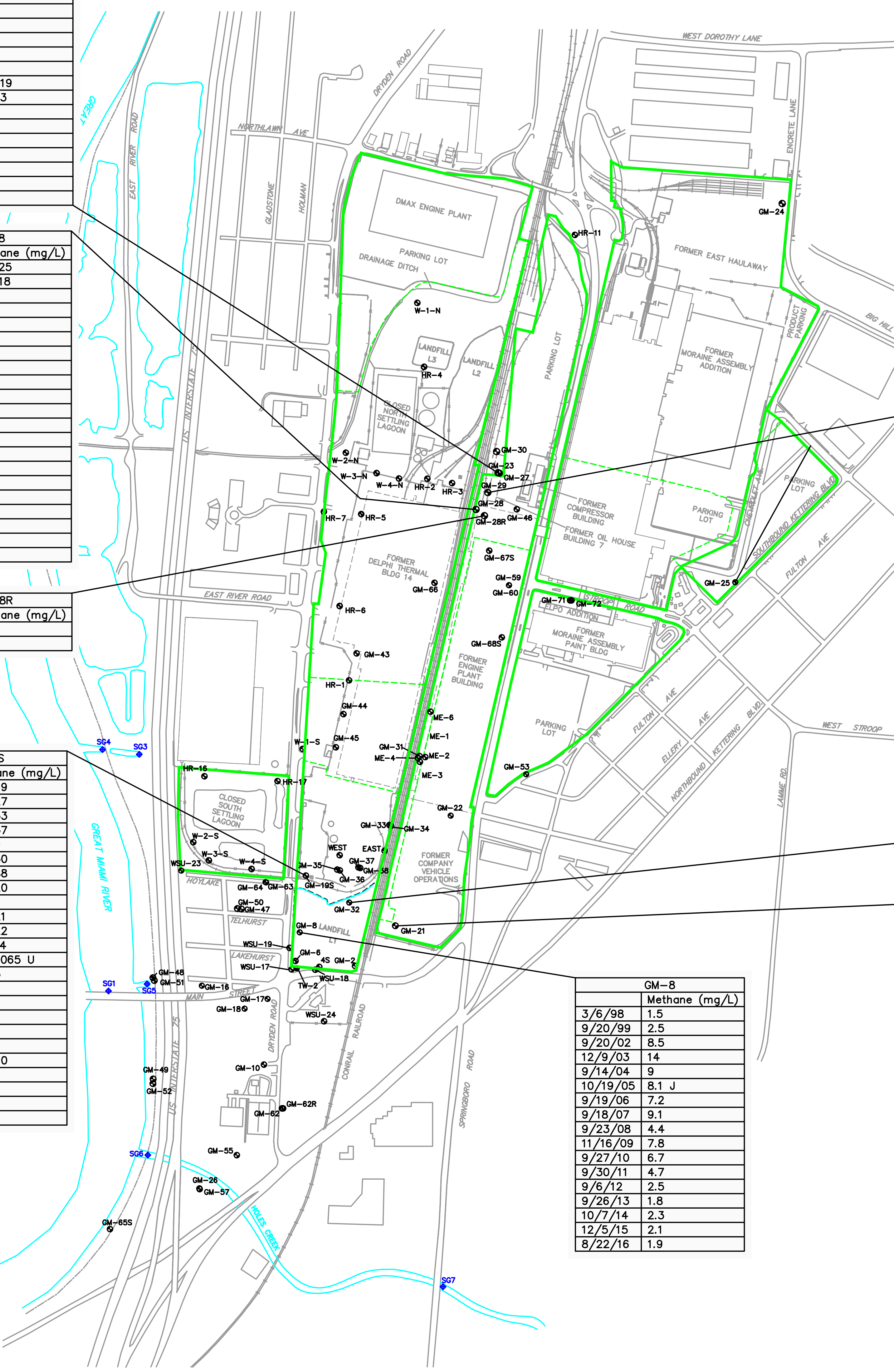
XREFS: IMAGES: PROJECTNAME: ----

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

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

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



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

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

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

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

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

OH000294.2017

UPPER AQUIFER METHANE RESULTS AT REACTIVE ZONE PERFORMANCE WELLS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
A-4

APPENDIX B

Site-Wide Groundwater CVOC Analytical Results from 1999 to 2015

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
Upgradient of the Site													
GM-24	9/23/1999	2.7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	12/11/2015	8.1	0.67 J	< 1.0 U	< 1.0 U	0.82 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.4	< 1.0 U	< 2.0 U
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
GM-19S	9/20/1999	16	7.7	1.0	< 1.0 U	35	< 10	**46**	< 1.0 U	2.3	**71**	< 1.0 U	< 10
	9/22/2000	15	4.4	< 1.0 U	< 1.0 U	38	< 1.0 U	**68**	< 1.0 U	2.6	**104**	< 1.0 U	< 1.0 U
	11/12/2001	7.6	2.9J	< 3.3 U	< 3.3 U	26	< 3.3 U	**64**	< 3.3 U	2.0	**97**	< 3.3 U	< 3.3 U
	9/26/2002	6.3	6.3	< 4.0 U	< 4.0 U	39	< 4.0 U	**52**	< 4.0 U	2.7	**110**	**5.2**	< 4.0 U
	9/25/2003	13	8.3	1.6 J	< 5.0 U	**89**	< 5.0 U	**62**	< 5.0 U	2.9	**140**	< 5.0 U	< 5.0 U
	9/13/2004	14	8.1	1.9 J	< 4.0 U	61	< 4.0 U	**71**	< 4.0 U	2.4	**120**	< 4.0 U	< 4.0 U
	10/18/2005	13	9.0	1.2 J	< 1.0 U	29	< 1.0 U	**95**	< 1.0 U	1.0 J	**140**	1.8	< 3.3 U
	9/21/2006	9.7 J	7.0 J	< 22 U	< 22 U	**660**	< 22 U	**9.1 J**	< 22 U	10 J	**11 J**	< 22 U	< 4.0 U
	9/17/2007	0.59 J	10	< 1.0 U	< 1.0 U	0.30 J	< 1.0 U	1.5	< 1.0 U	0.29 J	0.46 J	< 1.0 U	< 2.0 U
	9/23/2008	< 1.0 U	13	< 1.0 U	< 1.0 U	0.68 J	< 1.0 U	0.94 J	< 1.0 U	0.52 J	3.0	**9.3**	< 2.0 U
	11/17/2009	< 1.0 U	12	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	0.37 J	0.22 J	< 1.0 U	< 2.0 U
	4/7/2010	< 1.0 U	9.6	< 1.0 U	< 1.0 U	0.27 J	< 1.0 U	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/27/2010	< 1.0 U	9.5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.46 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/29/2011	< 1.0 U	10	< 1.0 U	< 1.0 U	5.3	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	**12**	< 2.0 U
	9/6/2012	< 1.0 U	8.4	< 1.0 U	< 1.0 U	7.3	< 1.0 U	< 1.0 U	< 1.0 U	0.84 J	0.30 J	**10**	< 2.0 U
	9/26/2013	< 1.0 U	8.3	< 1.0 U	< 1.0 U	26	< 1.0 U	< 1.0 U	< 1.0 U	1.1	0.46 J	**17**	< 2.0 U
	10/7/2014	< 1.0 U	7.6	< 1.0 U	< 1.0 U	37	< 1.0 U	< 1.0 U	< 1.0 U	0.91 J	0.81 J	**15**	< 2.9 U
	12/8/2015	< 1.0 U	3.1	< 1.0 U	< 1.0 U	37	< 1.0 U	< 1.0 U	< 1.0 U	0.66 J	1.3	**6.4**	< 2.0 U
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
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
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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
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
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

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ARCADIS Design & Consultancy for natural and built assets

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-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
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	3.0	< 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

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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-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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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-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
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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-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
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
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
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
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

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Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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-83S	2/26/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 1.0 U	0.18 J	0.3 J	< 1.0 U	< 1.0 U	< 2.0 U
	9/7/2012	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	0.45 J	< 1.0 U	0.19 J	< 1.0 U	< 2.0 U
	9/26/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
HR-1	9/16/1999	1.6	2.4	< 1.0 U	< 1.0 U	5.8	< 1.0 U	**44**	< 1.0 U	3.9	**56**	< 1.0 U	< 1.0 U
	9/25/2000	1.3	2.4	< 1.0 U	< 1.0 U	8.5	< 1.0 U	**33**	< 1.0 U	3.2	**56**	< 1.0 U	< 1.0 U
	11/8/2001	2.2 J	2.8 J	< 3.3 U	< 3.3 U	9.9	< 3.3 U	**36**	< 3.3 U	2.8	**86 B**	< 3.3 U	< 3.3 U
	9/23/2002	< 2.0 U	2.8	< 2.0 U	< 2.0 U	4.5	< 2.0 U	**33**	< 2.0 U	3.2	**33**	< 2.0 U	< 2.0 U
	9/18/2003	1 J	2.6	< 2.0 U	< 2.0 U	2.3	< 2.0 U	**27**	< 2.0 U	3.2	**56**	< 2.0 U	< 2.0 U
	9/13/2004	0.56 J	2.5	< 1.0 U	< 1.0 U	24	< 1.0 U	**23**	< 1.0 U	2.3	**30**	0.55 J	< 1.0 U
	10/18/2005	1.2	2.7	< 1.0 U	< 1.0 U	19	< 1.0 U	**28**	< 1.0 U	2.3	**43**	1.1	< 2.0 U
	9/25/2006	0.57 J	1.7	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	1.4 J	**50**	< 1.0 U	< 3.3 U
	9/24/2007	0.45 J	2.2	0.21J	< 1.0 U	9.5	< 1.0 U	**20**	< 1.0 U	1.9	**40**	< 1.0 U	< 2.0 U
	9/29/2008	0.77 J	1.8 J	< 2.5 U	< 2.5 U	5	< 2.5 U	**27**	< 2.5 U	2 J	**70**	< 2.5 U	< 5.0 U
	9/26/2013	0.99 J	1.2	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**30**	< 1.0 U	0.90 J	**100**	< 1.0 U	< 2.0 U
	10/8/2014	1.3 J	1.4 J	< 5.0 U	< 5.0 U	20	< 5.0 U	**36**	< 5.0 U	1.5 J	**120**	< 5.0 U	< 1.0 U
	11/5/2015	1.2	0.51 J	< 1.0 U	< 1.0 U	6.6	< 1.0 U	**76**	< 1.0 U	0.43 J	**210**	< 1.0 U	< 2.0 U
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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-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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	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)
		VOCs (ug/L)											
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
HR-16	9/23/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U
	9/18/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.46J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.5	< 1.0 U	< 1.0 U
	1/21/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U
	9/6/2012	0.62 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.4	< 1.0 U	< 2.0 U
	9/25/2013	0.61 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.14 J	< 1.0 U	< 1.0 U	1.3	< 1.0 U	< 2.0 U
	10/7/2014	0.58 J	0.64 J	< 1.0 U	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 2.0 U
	11/5/2015	< 1.0 U	1.3	< 1.0 U	< 1.0 U	1	< 1.0 U	< 1.0 U	< 1.0 U	0.63 J	2.7	< 1.0 U	< 2.0 U
HR-17	9/23/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.2	< 1.0 U	**16**	< 1.0 U	< 1.0 U	**7.4**	< 1.0 U	< 1.0 U
	9/28/2000	1.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.7	< 1.0 U	< 1.0 U	4.4	< 1.0 U	< 1.0 U
	11/8/2001	1.4	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	3.3	< 1.0 U	< 0.50 U	4.2 B	< 1.0 U	< 1.0 U
	9/18/2002	0.39 J	1.5	< 1.0 U	< 1.0 U	5.1	< 1.0 U	**22**	< 1.0 U	1.4	**12**	< 1.0 U	< 1.0 U
	9/25/2003	< 2.0 U	0.75 J	< 2.0 U	< 2.0 U	2.2	< 2.0 U	**64**	< 2.0 U	0.7 J	**10**	< 2.0 U	< 2.0 U
	9/17/2004	< 5.0 U	2.0 J	< 5.0 U	< 5.0 U	7.1	< 5.0 U	**82**	< 5.0 U	1.6 J	**18**	< 5.0 U	< 5.0 U
	10/19/2005	< 1.0 U	0.70 J	< 1.0 U	< 1.0 U	3.1	< 1.0 U	**45**	< 1.0 U	0.57 J	**8.3**	< 1.0 U	< 3.7 U
	9/18/2006	< 1.0 U	0.6 J	< 1.0 U	< 1.0 U	4.6	< 1.0 U	**34**	< 1.0 U	0.46 J	**5.6**	< 1.0 U	< 2.0 U
	9/25/2007	< 2.5 U	1.2 J	< 2.5 U	< 2.5 U	1.9 J	< 2.5 U	**51**	< 2.5 U	0.69 J	**16**	< 2.5 U	< 5.0 U
	9/26/2008	< 4.0 U	1.1 J	< 4.0 U	< 4.0 U	2.7 J	< 4.0 U	**120**	< 4.0 U	1.0 J	**31**	< 4.0 U	< 8.0 U
	11/12/2009	< 2.5 U	1.7 J	< 2.5 U	< 2.5 U	1.9 J	< 2.5 U	**85**	< 2.5 U	1.3 J	**21**	< 2.5 U	< 5.0 U
	9/23/2010	< 1.0 U	1.9	< 1.0 U	< 1.0 U	2.2	< 1.0 U	**60**	< 1.0 U	1.2 J	**18**	< 1.0 U	< 3.3 U
	9/29/2011	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	< 5.7 U	**110**	< 5.7 U	< 5.7 U	**57**	< 5.7 U	< 1.0 U
	9/6/2012	< 9.1 U	< 9.1 U	< 9.1 U	< 9.1 U	2.4 J	< 9.1 U	**140**	< 9.1 U	< 9.1 U	**75**	< 9.1 U	< 1.0 U
	9/25/2013	1.3	0.93 J	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**150**	< 1.0 U	0.92 J	**100**	< 1.0 U	< 2.0 U
	10/7/2014	< 5.0 U	2.0 J	< 5.0 U	< 5.0 U	2.2 J	< 5.0 U	**170**	< 5.0 U	< 5.0 U	**160**	< 5.0 U	< 1.0 U
	11/4/2015	1.5	0.61 J	< 1.0 U	< 1.0 U	1.7	< 1.0 U	**150**	< 1.0 U	0.73 J	**160**	< 1.0 U	< 2.0 U
ME-1	8/31/1999	14	2.4	< 1.0 U	< 1.0 U	38	< 1.0 U	**84**	< 1.0 U	1.5	**292**	**36**	< 1.0 U
ME-3	8/31/1999	43	6.1	< 1.0 U	< 1.0 U	5.7	< 1.0 U	**58**	< 1.0 U	< 1.0 U	**48**	< 1.0 U	< 1.0 U
	9/21/2000	6.4	3.4	< 1.0 U	< 1.0 U	2.9	< 1.0 U	< 1.0 U	1.4	2.9	< 1.0 U	**2.1**	< 1.0 U
	11/15/2001	1.6	5.9	< 1.0 U	< 1.0 U	16	< 1.0 U	1.3	0.34 J	2.7	3.8	**7.3**	< 1.0 U
	9/24/2002	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 1.0 U	< 2.5 U	< 2.5 U	< 2.5 U	< 1.0 U	< 2.5 U	< 2.5 U	< 2.5 U
	10/1/2003	0.31 J	24	< 1.0 U	0.6 J	0.96	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.5	< 1.0 U	< 1.0 U
	9/15/2004	0.53 J	18	< 1.0 U	< 1.0 U	2.2	< 1.0 U	0.21 J	< 1.0 U	< 0.50 U	1.5	1.1	< 1.0 U
	10/18/2005	1.6	15	< 1.0 U	< 1.0 U	1.1	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.9	1.6	< 2.0 U
	9/27/2006	1.1	8.5	< 1.0 U	< 1.0 U	3.5	< 1.0 U	1.9	< 1.0 U	0.34 J	2.4	**2.2**	< 2.0 U
	9/20/2007	2.0	3.8	< 1.0 U	< 1.0 U	1.2	< 1.0 U	**5.2**	< 1.0 U	< 1.0 U	3.6	0.82 J	< 2.0 U
	10/22/2008	2.1	1.8	< 1.0 U	< 1.0 U	1.4	< 1.0 U	**8.1**	< 1.0 U	< 1.0 U	4.9	0.7 J	< 2.0 U
	9/27/2013	1.0	0.41 J	< 1.0 U	< 1.0 U	0.35 J	< 1.0 U	**7.1**	< 1.0 U	< 1.0 U	4.6	< 1.0 U	< 2.0 U
ME-6	8/31/1999	2.9	< 1.0 U	< 1.0 U	< 1.0 U	**255**	< 1.0 U	**213**	< 1.0 U	< 1.0 U	**474**	< 1.0 U	< 1.0 U
	9/21/2000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**99**	< 1.0 U	**6.7**	1.9	2.5	**19**	**6.1**	< 1.0 U
	11/15/2001	2.2	2.7	< 2.0 U	< 2.0 U	65	< 2.0 U	**8.2**	0.42 J	1.8	**23**	**13**	< 2.0 U
	9/25/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	5.2	< 1.0 U	< 1.0 U	6.6J	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	10/1/2003	13	7.2	< 2.0 U	0.46 J	20	< 2.0 U	**12**	< 2.0 U	< 1.0 U	**31**	**2.9**	< 2.0 U
	9/15/2004	4.1	6.3	0.26 J	< 1.0 U	14	< 1.0 U	**5.3**	< 1.0 U	0.56	**9.2**	**2.4**	< 1.0 U
	10/18/2005	2.2	7.0	< 1.0 U	< 1.0 U	13	< 1.0 U	**9.8**	< 1.0 U	0.93 J	**25**	**5.6**	< 2.0 U
	9/27/2006	1.4	6.3	< 1.0 U	< 1.0 U	27	< 1.0 U	**13**	< 1.0 U	1.3 J	**32**	**11**	< 2.9 U
	9/20/2007	0.61 J	6.4	< 1.0 U	< 1.0 U	9.2	< 1.0 U	4.5	< 1.0 U	0.51 J	**12**	**4.5**	< 2.0 U
	10/22/2008	2.7	11	< 1.0 U	< 1.0 U	5.2	< 1.0 U	**7.7**	< 1.0 U	0.25 J	**9**	1.7	< 2.0 U
	9/27/2013	5.9	20	< 1.0 U	< 1.0 U	1.5	< 1.0 U	**5.1**	< 1.0 U	< 1.0 U	2.8	0.28 J	< 2.0 U

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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
RMW-89	1/15/2016	0.99 J	< 1.0 U	< 1.0 U	< 1.0 U	2	< 1.0 U	**46**	< 1.0 U	< 1.0 U	**22**	< 1.0 U	< 2.0 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	**29**	1	< 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
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

Well	Date	VOCs (ug/L)											
		1,1,1-TCA	1,1-DCA	1,1-DCE	Benzene	cis-1,2-DCE	Ethyl-benzene	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Xylenes (total)
MCL		200		7	5	70	700	5	1000	100	5	2	10,000
Downgradient of the Site													
4S	9/20/1999	< 1.0 U	1.6	< 1.0 U	1.6	< 1.0 U	<10	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U
	10/2/2003	< 2.0 U	7.0	< 2.0 U	1.6 J	< 1.0 U	1.7 J	< 2.0 U	< 2.0 U	1.7	< 2.0 U	< 2.0 U	< 2.0 U
	9/14/2004	< 5.0 U	7.5	< 5.0 U	4.5 J	< 2.5 U	4.7 J	< 5.0 U	1.1 J	< 2.5 U	< 5.0 U	< 5.0 U	2.4 J
	10/19/2005	< 4.0 U	2.3 J	< 4.0 U	1.6 J	< 4.0 U	1.6 J	< 4.0 U	< 4.0 U	0.95 J	< 4.0 U	< 4.0 U	< 8.0 U
	9/20/2006	< 1.0 U	5.6	< 1.0 U	0.7 J	0.25 J	0.52 J	< 1.0 U	< 1.0 U	0.75 J	< 1.0 U	< 1.0 U	< 2.0 U
GM-2	9/20/1999	5.5	1.4	< 1.0 U	< 1.0 U	8.4	<10	**6.0**	< 1.0 U	< 1.0 U	**62**	< 1.0 U	< 10 U
	9/25/2000	5.7	3.7	< 1.0 U	< 1.0 U	39	< 1.0 U	**7.7**	< 1.0 U	1.3	**83**	1.7	< 1.0 U
	11/9/2001	6.1	6.1	< 3.3 U	< 3.3 U	26	< 3.3 U	**8.4**	< 3.3 U	1.1J	**65**	< 3.3 U	< 3.3 U
	9/20/2002	0.75 J	3.4	< 1.0 U	< 1.0 U	7.6	< 1.0 U	**8.7**	< 1.0 U	0.37J	**26**	< 1.0 U	< 1.0 U
	10/2/2003	0.21 J	1.7	< 1.0 U	< 1.0 U	4.7	0.21 J	**5.7**	< 1.0 U	< 0.50 U	**13**	0.46 J	< 1.0 U
	9/14/2004	< 1.0 U	1.6	< 1.0 U	< 1.0 U	5.6	< 1.0 U	4.0	< 1.0 U	0.23 J	**6.2**	< 1.0 U	< 1.0 U
	10/19/2005	< 1.0 U	2.0	< 1.0 U	< 1.0 U	6.8	< 1.0 U	3.6	< 1.0 U	0.26 J	4.6	0.24 J	< 2.0 U
	9/20/2006	< 1.0 U	2.1	< 1.0 U	< 1.0 U	7.7	< 1.0 U	2.6	< 1.0 U	0.34 J	**5.1**	0.61 J	< 2.0 U
	9/18/2007	< 1.0 U	1.4	< 1.0 U	< 1.0 U	4.9	< 1.0 U	1.6	< 1.0 U	0.28 J	2.3	1.1	< 2.0 U
	9/24/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	6.7	< 1.0 U	1.3	< 1.0 U	0.19 J	2.4	< 1.0 U	< 2.0 U
	11/11/2009	< 1.0 U	1.0	< 1.0 U	< 1.0 U	3.2	< 1.0 U	0.90 J	< 1.0 U	< 1.0 U	1.4	**2.3**	< 2.0 U
	9/27/2010	< 1.0 U	1.2	< 1.0 U	< 1.0 U	3.8	< 1.0 U	0.44 J	< 1.0 U	< 1.0 U	0.95 J	**2.5**	< 2.0 U
	9/29/2011	< 1.0 U	0.92 J	< 1.0 U	< 1.0 U	9	< 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	2	< 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
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

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Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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-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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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
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
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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-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
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
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
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
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

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RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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-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
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
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
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
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

Table B-1
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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
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
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
Site-Wide Groundwater VOC Analytical Results for the Upper Aquifer Wells from 1999 to 2015
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.
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.
ug/L - Micrograms per Liter.
VOCs - Volatile Organic Compounds.

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
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
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
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
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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**	1.0 J	< 4.0 U
GM-39	12/10/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	0.18 J	< 0.50 U	< 1.0 U	1.3	< 1.0 U
	9/20/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	1.8	< 1.0 U
	10/24/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.77 J	< 2.0 U
	9/27/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	1.7	< 2.0 U
	9/26/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	19 J	< 1.0 U	< 1.0 U	< 1.0 U	0.23 J	< 1.0 U	1.6	< 2.0 U
	10/1/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.67 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.2**	< 2.0 U
	9/27/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.68 J	< 1.0 U	< 1.0 U	0.63 J	1.5	< 2.0 U
GM-40	12/10/2003	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	**3.1**	< 1.0 U
	9/20/2004	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	**3.2**	< 1.0 U
	10/25/2005	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.9**	< 2.0 U
	9/26/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.9**	< 2.0 U
	9/25/2007	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**4.0**	< 2.0 U
	9/30/2008	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.6**	< 2.0 U
GM-41	12/10/2003	< 11 U	< 11 U	< 11 U	< 1.0 U	10	< 11 U	< 11 U	< 11 U	< 5.6 U	**320**	< 11 U	< 11 U
	9/21/2004	< 6.2 U	< 6.2 U	< 6.2 U	< 6.2 U	24	< 6.2 U	< 6.2 U	< 6.2 U	< 3.1 U	**180**	< 6.2 U	< 6.2 U
	10/24/2005	< 10 U	< 10 U	< 10 U	< 10 U	16	< 10 U	< 10 U	< 10 U	< 10 U	**250**	< 10 U	< 20 U
	9/18/2006	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	11	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	**210**	< 4.0 U	< 8.0 U
	5/3/2007	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	15	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	**170**	**2.4 J**	< 13 U
	9/20/2007	< 6.7 U	< 6.7 U	< 6.7 U	< 6.7 U	17	< 6.7 U	< 6.7 U	< 6.7 U	1.4 J	**230**	1.9 J	< 13 U
	9/26/2008	< 7.1 U	< 7.1 U	< 7.1 U	< 7.1 U	11	< 7.1 U	< 7.1 U	< 7.1 U	< 7.1 U	**180**	< 7.1 U	< 14 U
	9/27/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	12	< 1.0 U	< 1.0 U	< 1.0 U	0.89 J	**79**	1.9	< 2.0 U

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
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-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

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
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-58	9/14/2006	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.73 J	< 1.0 U	4.4	0.4 J	< 1.0 U	0.72 J	< 1.0 U	< 2.0 U
	11/30/2006	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**85**	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U
	5/3/2007	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	**82**	< 2.9 U	< 2.9 U	< 2.9 U	< 2.9 U	< 5.7 U
	9/20/2007	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	**69**	< 3.3 U	< 3.3 U	< 3.3 U	< 3.3 U	< 6.7 U
	9/26/2008	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	**80**	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 5.0 U
	9/27/2013	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**34**	< 1.0 U	< 1.0 U	0.41 J	< 1.0 U	< 2.0 U
GM-61	9/15/2006	0.5.0 J	2.2	< 1.7 U	< 1.7 U	2.6	< 1.7 U	**20**	0.44 J	< 1.7 U	**36**	< 1.7 U	< 3.3 U
	9/26/2007	0.59 J	1.6 J	< 1.7 U	< 1.7 U	3.9	< 1.7 U	**28**	< 1.7 U	< 1.7 U	**56**	< 1.7 U	< 3.3 U
	10/1/2008	< 1.0 U	0.94 J	0.19 J	< 1.0 U	20	< 1.0 U	**13**	< 1.0 U	0.92 J	**23**	0.75 J	< 2.0 U
	9/26/2013	< 1.0 U	1.3	< 1.0 U	< 1.0 U	17	< 1.0 U	**7.2**	< 1.0 U	1.1	**5.2**	1.2	< 2.0 U
	8/26/2015	< 1.0 U	3.3	< 1.0 U	< 1.0 U	25	< 1.0 U	**32**	< 1.0 U	1.5	**12**	0.45 J	< 2.0 U
GM-67D	5/3/2007	0.59 J	3.0	0.36 J	< 1.7 U	23	< 1.7 U	**54**	< 1.7 U	0.83 J	**45**	< 1.7 U	< 3.3 U
	10/10/2014	1.2 J	3.7	< 3.3 U	< 3.3 U	**120.0**	< 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
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

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
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-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
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
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	5.0	< 1.0 U	< 2.0 U

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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	1.6	41	< 1.0 U	< 1.0 U	21	< 1.0 U	< 1.0 U	< 1.0 U	3.1	3.4	< 1.0 U	< 1.0 U
	9/29/2000	1.7	40	< 1.0 U	< 1.0 U	14	< 1.0 U	< 1.0 U	< 1.0 U	2.5	2.0	< 1.0 U	< 1.0 U
	11/14/2001	0.74 J	15	< 1.0 U	0.18 J	6.5	< 1.0 U	< 1.0 U	< 1.0 U	0.65	1.2	< 1.0 U	< 1.0 U
	9/30/2002	1.4	25	< 1.0 U	< 1.0 U	11	< 1.0 U	< 1.0 U	< 1.0 U	1.4	3.6	< 1.0 U	< 1.0 U
	9/16/2003	2.2	33	< 1.0 U	< 1.0 U	12	< 1.0 U	< 1.0 U	< 1.0 U	1.8	**5.7**	< 1.0 U	< 1.0 U
	9/21/2004	2.6	30	0.27 J	< 1.0 U	12	< 1.0 U	< 1.0 U	< 1.0 U	1.5	**21**	0.43 J	< 1.0 U
	10/25/2005	2.3	25	0.25 J	< 1.0 U	11	< 1.0 U	0.20 J	< 1.0 U	1.5	**20**	< 1.0 U	< 2.0 U
	9/25/2006	2.0	22	0.18 J	< 1.0 U	9.0	< 1.0 U	0.20 J	< 1.0 U	1.4	**15**	< 1.0 U	< 2.0 U
	8/26/2015	1.7	4.0	0.52 J	< 1.0 U	**72**	< 1.0 U	**28**	< 1.0 U	1.3	**22**	**6.9**	< 2.0 U
HR-14	9/15/1999	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	7.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.4	**12**	< 1.0 U
	9/30/2002	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	3.6	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	1.2	< 1.0 U	< 1.0 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
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

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
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
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
Downgradient of the Site													
DN-13	11/14/2001	1.1	2.5	< 1.0 U	< 1.0 U	6.2	< 1.0 U	< 1.0 U	< 1.0 U	0.37J	5.0	1.2	< 1.0 U
	9/27/2002	1.1	2.5	< 1.0 U	< 1.0 U	7.3	< 1.0 U	< 1.0 U	< 1.0 U	0.48J	**6.1**	1.3	< 1.0 U
	9/22/2003	1.1	2.4	< 1.0 U	< 1.0 U	6.8	< 1.0 U	0.31 J	< 1.0 U	0.4 J	**6.4**	1.1	< 1.0 U
	9/16/2004	0.84 J	2.2	< 1.0 U	< 1.0 U	6.7	< 1.0 U	0.44 J	< 1.0 U	0.49 J	**6.8**	**2.1**	< 1.0 U
	10/20/2005	1.5	2.0	< 1.0 U	< 1.0 U	5.5	< 1.0 U	0.38 J	< 1.0 U	< 1.0 U	**7.2**	**2.6**	< 2.0 U
	9/27/2006	0.51 J	1.5	< 1.0 U	< 1.0 U	6.1	< 1.0 U	0.33 J	< 1.0 U	0.41 J	**5.7**	**2.3**	< 2.0 U
	9/19/2007	0.48 J	2.0	< 1.0 U	< 1.0 U	6.4	< 1.0 U	< 1.0 U	< 1.0 U	0.4 J	3.3	**2.6**	< 2.0 U
	9/24/2008	0.63 J	< 1.7 U	< 1.0 U	< 1.0 U	6.2	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	4.5	1.4	< 2.0 U
	11/11/2009	0.77 J	2.1	< 1.0 U	< 1.0 U	7.9	< 1.0 U	0.33 J	< 1.0 U	0.50 J	**6.5**	1.7	< 2.0 U
	9/22/2010	0.48 J	1.6	< 1.0 U	< 1.0 U	6.9	< 1.0 U	< 1.0 U	< 1.0 U	0.44 J	5.0	1.3	< 2.0 U
	9/28/2011	< 1.0 U	1.5	< 1.0 U	< 1.0 U	6.3	< 1.0 U	0.40 J	< 1.0 U	0.38 J	4.8	1.3	< 2.0 U
	9/6/2012	0.99 J	2.0	< 1.0 U	< 1.0 U	7.5	< 1.0 U	0.76 J	< 1.0 U	0.47 J	**7.9**	1.2	< 2.0 U
	9/27/2013	0.93 J	1.9	< 1.0 U	< 1.0 U	6.9	< 1.0 U	0.58 J	< 1.0 U	0.55 J	**8.4**	1.1	< 2.0 U
	12/4/2014	0.86 J	1.6	< 1.0 U	< 1.0 U	5.9	< 1.0 U	3.5	< 1.0 U	0.41 J	**10**	0.79 J	< 2.0 U
	11/5/2015	0.81 J	1.3	< 1.0 U	< 1.0 U	5.5	< 1.0 U	2.5	< 1.0 U	0.42 J	**9.0**	0.70 J	< 2.0 U

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
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
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
RACER Trust Moraine Facilities
Moraine, Ohio

Well	Date	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
		VOCs (ug/L)											
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
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

Table B-2
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RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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

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ARCADIS Design & Consultancy for natural and built assets

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-20D	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	1.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	4.2	< 1.0 U	< 1.0 U	**14**	< 1.0 U	< 1.0 U
	11/14/2001	0.64 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.0	< 1.0 U	< 0.50 U	**5.9**	< 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	1.3	< 1.0 U	< 0.50 U	3.8	< 1.0 U	< 1.0 U
	9/22/2003	0.89 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	3.6	< 1.0 U	< 0.50 U	**12**	< 1.0 U	< 1.0 U
	9/21/2004	0.96 J	< 1.0 U	< 1.0 U	< 1.0 U	< 0.50 U	< 1.0 U	2.9	< 1.0 U	< 0.50 U	**11**	< 1.0 U	< 1.0 U
	10/26/2005	0.73 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.7	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 2.0 U
	9/26/2006	0.51 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 2.0 U
	9/19/2007	0.50 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.1	< 1.0 U	< 1.0 U	**9.2**	< 1.0 U	< 2.0 U
	9/25/2008	0.45 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	2.6	< 1.0 U	< 1.0 U	**6.6**	< 1.0 U	< 2.0 U
	11/13/2009	0.40 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	2.0	< 1.0 U	< 1.0 U	**7.6**	< 1.0 U	< 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
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

Table B-2
Site-Wide Groundwater VOC Analytical Results for the Lower Aquifer Wells from 1999-2015
RACER Trust Moraine Facilities
Moraine, Ohio

ARCADIS Design & Consultancy for natural and built assets

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

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
(1) - Well 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.
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.
J - Value is estimated.
MCL - Maximum Contaminant Level.
ug/L - Micrograms per Liter.
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

Annual Groundwater Sampling Event Field Parameters Data Sheet for 2016

Appendix C
Annual Groundwater Sampling Event Field Parameters Data Sheet for 2016
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-2	GM-2/08192016/	6.91	17.06	-82	1.260	2.21	0.220	10:39	11:29	2.4	8/19/2016	11:30	T. Runge
GM-6	GM-6/08222016/	7.02	16.80	-131	1.280	1.98	0.250	13:42	14:17	8.7	8/22/2016	14:19	T. Runge
GM-8	GM-8/08222016/	7.33	18.71	-174	1.330	3.97	0.250	12:45	13:25	11.2	8/22/2016	13:26	T. Runge
GM-16	GM-16/08182016/	6.82	15.62	74	1.130	0.41	0.700	11:27	11:48	14.4	8/18/2016	11:50	C. Pribulick
GM-19S	GM-19S/08222016/	6.92	17.37	-133	1.180	2.16	0.250	10:05	11:25	18.8	8/22/2016	11:30	T. Runge
GM-21	GM-21/08222016/	6.40	17.32	-93	2.560	0.64	0.575	9:56	10:28	18.9	8/22/2016	10:35	C. Pribulick
GM-23	GM-23/08222016/	6.89	18.48	-114	1.330	0.40	0.500	15:33	16:00	13.6	8/22/2016	16:10	C. Pribulick
GM-24	GM-24/08162016/	7.00	17.78	121	1.280	1.81	0.400	13:21	14:27	28.0	8/16/2016	14:30	C. Pribulick
GM-26	GM-26/08152016/	6.85	14.84	181	1.010	9.61	0.250	12:49	13:34	11.2	8/15/2016	13:39	T. Runge
GM-28R	GM-28R/08222016/	6.95	18.10	-126	0.911	0.29	0.700	11:31	13:16	64.0	8/22/2016	13:25	C. Pribulick
GM-29	GM-29/08222016/	6.93	18.90	-155	1.340	0.26	0.400	14:02	14:49	20.8	8/22/2016	14:50	C. Pribulick
GM-30	GM-30/08242016/	6.43	18.91	-82	2.330	15.10	0.250	10:38	10:58	4.7	8/24/2016	11:25	T. Runge
GM-32	GM-32/08172016/	6.81	17.96	-148	1.200	7.08	0.250	11:40	12:35	13.7	8/17/2016	12:37	T. Runge
GM-35	GM-35/08232016/	8.36	19.41	-201	4.340	0.80	0.250	13:35	14:28	12.0	8/23/2016	14:30	T. Runge
GM-43	GM-43/08232016/	6.97	17.78	16	1.210	5.62	0.700	11:41	12:35	37.9	8/23/2016	12:40	C. Pribulick
GM-47	GM-47/08242016/	6.89	17.18	5	1.360	0.24	0.250	9:25	10:10	11.2	8/24/2016	10:12	T. Runge
GM-50	GM-50/08232016/	6.94	17.37	-18	1.150	1.04	0.250	15:05	15:55	12.5	8/23/2016	15:57	T. Runge
GM-51	GM-51/08252016/	6.91	18.01	156	1.180	10.06	0.400	11:14	11:54	3.2	8/25/2016	11:55	C. Pribulick
GM-52	GM-52/08252016/	6.94	18.33	160	1.280	12.34	0.700	12:09	12:30	16.1	8/25/2016	12:35	C. Pribulick
GM-55	GM-55/08152016/	7.08	17.52	171	0.979	5.87	0.250	15:03	15:53	12.5	8/15/2016	15:58	T. Runge
GM-59	GM-59/08232016/	7.11	16.71	178	1.020	2.48	0.700	13:27	14:01	21.4	8/23/2016	14:05	C. Pribulick
GM-60	GM-60/08232016/	7.08	17.06	146	1.240	1.04	0.650	14:19	14:53	18.2	8/23/2016	15:00	C. Pribulick
GM-63	GM-63/08242016/	6.94	17.24	218	1.130	0.41	0.700	9:24	9:59	18.2	8/24/2016	10:05	C. Pribulick
GM-65S	GM-65S/08172016/	6.89	16.43	180	1.020	11.03	0.250	8:58	9:38	10.0	8/17/2016	9:40	T. Runge
GM-74S	GM-74S/08232016/	7.09	17.19	179	1.720	4.79	0.600	15:19	16:00	25.5	8/23/2016	16:05	C. Pribulick
GM-75S	GM-75S/08242016/	7.09	16.02	153	1.090	2.71	0.350	13:06	14:01	20.3	8/24/2016	14:02	T. Runge
GM-78	GM-78/08252016/	7.08	19.55	194	0.950	13.02	0.250	13:30	14:15	10.4	8/25/2016	14:17	T. Runge
GM-79	GM-79/08192016/	6.94	17.06	141	1.160	1.25	0.250	13:14	13:39	7.5	8/19/2016	13:40	T. Runge
GM-80	GM-80/08192016/	6.85	18.49	152	1.030	0.77	0.220	12:24	12:54	6.6	8/19/2016	12:56	T. Runge
HR-2	HR-2/08252016/	6.85	16.33	-48	1.570	4.59	0.600	14:33	15:04	19.7	8/25/2016	15:10	C. Pribulick
HR-3	HR-3/08252016/	6.91	17.70	42	1.350	0.46	0.600	15:38	15:54	8.5	8/25/2016	16:00	C. Pribulick
HR-4	HR-4/08192016/	6.91	15.34	69	1.340	0.40	0.825	9:28	10:01	24.2	8/19/2016	10:10	C. Pribulick
HR-7	HR-7/08152016/	9.51	17.38	103	1.160	0.41	0.500	15:06	15:51	22.0	8/15/2016	15:55	C. Pribulick
HR-16	HR-16/08222016/	6.89	17.33	66	1.000	1.50	0.250	14:45	15:40	12.5	8/22/2016	15:45	T. Runge
HR-17	HR-17/08/252016/	6.99	20.80	165	1.080	1.91	0.250	14:33	15:08	12.5	8/25/2016	15:10	T. Runge
TW-2	TW-2/08172016/	6.82	16.40	-155	1.320	1.78	0.250	14:41	15:11	7.5	8/17/2016	15:03	T. Runge
W-1-N	W-1-N/08182016/	6.91	15.88	129	1.450	0.97	0.250	13:48	14:28	2.0	8/18/2016	14:30	T. Runge
W-2-N	W-2-N/08152016/	6.96	18.17	-96	1.080	0.36	0.400	12:28	13:13	21.6	8/15/2016	13:20	C. Pribulick
W-2-S	W-2-S/08232016/	6.93	16.56	185	1.110	8.81	0.220	10:02	10:47	9.9	8/23/2016	10:50	T. Runge
W-3-N	W-3-N/08192016/	6.99	16.44	-128	1.260	0.80	0.500	11:02	11:39	18.9	8/19/2016	11:45	C. Pribulick
W-3-S	W-3-S/08232016/	7.00	18.04	127	1.020	1.09	0.250	10:58	11:53	13.7	8/23/2016	11:55	T. Runge
W-4-N	W-4-N/08192016/	6.91	16.07	-8	1.530	0.38	0.600	13:41	14:05	17.0	8/19/2016	14:10	C. Pribulick
W-4-S	W-4-S/08232016/	6.90	17.28	167	1.440	1.10	0.250	12:16	12:56	10.0	8/23/2016	12:58	T. Runge

Appendix C
Annual Groundwater Sampling Event Field Parameters Data Sheet for 2016
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
Lower Aquifer Wells													
DN-13	DN-13/08252016/	6.90	18.10	NM	1.110	NM	NM	14:55	15:15	NM	8/25/2016	15:15	S. Clark
GM-9	GM-9/08172016/	7.08	17.99	112	0.891	1.23	0.250	10:32	10:57	6.2	8/17/2016	11:00	T. Runge
GM-11	GM-11/08182016/	7.11	17.23	122	1.130	1.75	0.500	14:44	15:27	5.6	8/18/2016	15:35	C. Pribulick
GM-15	GM-15/08182016/	6.83	16.54	-45	1.330	0.40	0.700	12:38	13:12	21.8	8/18/2016	13:20	C. Pribulick
GM-19D	GM-19D/0816/2016/	6.72	21.29	-72	1.410	7.01	0.250	10:11	10:46	1.8	8/16/2016	10:51	T. Runge
GM-20D	GM-20D/08192016/	6.90	16.87	89	1.070	7.05	0.250	9:19	10:09	12.5	8/19/2016	10:10	T. Runge
GM-54	GM-54/0818/2016	6.78	16.53	114	1.320	2.22	0.850	9:51	10:27	26.5	8/18/2016	10:30	C. Pribulick
GM-68D	GM-68D/08172016/	8.87	17.39	-28	1.250	5.96	0.500	14:59	16:15	36.7	8/17/2016	16:25	C. Pribulick
GM-75D	GM-75D/08242016/	6.79	16.61	-17	1.240	1.21	0.750	13:07	13:56	29.0	8/24/2016	14:00	C. Pribulick
GM-77D	GM-77D/08172016/	6.88	16.29	120	1.470	2.71	0.800	10:49	11:38	28.4	8/17/2016	11:40	C. Pribulick
GM-83D	GM-83D/08192016/	6.94	17.10	-137	1.290	2.95	0.250	14:19	15:04	11.2	8/19/2016	15:05	T. Runge
GM-84	GM-84/08172016/	6.92	15.09	64	1.090	0.48	0.850	9:19	10:04	34.1	8/17/2016	10:10	C. Pribulick
HR-1	HR-1/08232016/	6.92	18.43	65	1.080	10.52	0.500	10:29	11:13	22.0	8/23/2016	11:20	C. Pribulick
HR-12	HR-12/08162016/	6.76	16.05	-71	1.390	0.33	0.450	9:59	11:19	48.6	8/16/2016	11:25	C. Pribulick
HR-15	HR-15/08192016/	6.84	16.56	-96	1.480	0.32	0.500	12:27	13:10	25.5	8/19/2016	13:15	C. Pribulick
RMW-85	RMW-85/08242016/	6.78	16.50	-60	1.270	1.62	0.600	11:35	12:31	36.9	8/24/2016	12:40	C. Pribulick
RMW-86	RMW-86/08172016/	6.85	17.81	10	1.290	5.52	0.250	15:30	16:10	10.0	8/17/2016	16:10	T. Runge
RMW-87	RMW-87/08192016/	6.89	18.34	-17	1.470	0.36	0.500	14:42	15:15	26.5	8/19/2016	15:25	C. Pribulick
RMW-88	RMW-88/08262016/	6.75	15.47	-110	1.400	8.52	0.400	9:45	10:22	17.8	8/26/2016	10:25	T. Runge
RMW-89	RMW-89/08242016	7.04	15.82	50	1.110	0.50	0.250	11:30	12:15	11.2	8/24/2016	12:16	T. Runge
RMW-90	RMW-90/08172016/	6.89	17.99	-129	1.290	0.37	0.500	13:47	14:25	21.8	8/17/2016	14:30	C. Pribulick

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 D

Groundwater Analytical Database for 2016

ARCADIS Design & Consultancy for natural and built assets

			Upgradient Contributions		Source Areas						
	Units	MCL[1]	W-1-N 8/18/2016 Upper Aquifer	GM-24 8/16/2016 Upper Aquifer	GM-23 8/22/2016 Upper Aquifer	GM-59 8/23/2016 Upper Aquifer	GM-60 8/23/2016 Upper Aquifer	GM-74S 8/23/2016 Upper Aquifer	GM-75S 8/24/2016 Upper Aquifer	RMW-89 8/24/2016 Upper Aquifer	RMW-90 8/17/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds											
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	10	< 2.0 U	< 2.0 U	1.1 J	< 2.0 U	< 2.0 U	< 2.0 U	12
1,1-Dichloroethane	ug/L		4.8	0.84 J	8.6	< 2.0 U	0.69 J	< 2.0 U	< 2.0 U	< 2.0 U	8.4
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	1.1 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	0.96 J
Benzene	ug/L	5	< 1.0 U	1.5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	0.36 J	1.2	**530**	2.6	12	< 2.0 U	< 2.0 U	4.4	31
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	**8.0**	**280**	**530**	**69**	**520**	**61**	1.5
Toluene	ug/L	1,000	< 1.0 U	0.94 J	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	18	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	0.99 J
Trichloroethene	ug/L	5	< 1.0 U	4.5	**7.6**	**170**	**700**	**14 K**	**68**	**21**	**55**
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	**280**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	0.81 J
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		5.2	19	853	453	1,244	83	588	86	111

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

			Downgradient Reactive Zone Performance Wells									
	Units	MCL[1]	GM-28R 8/22/2016 Upper Aquifer	GM-29 8/22/2016 Upper Aquifer	GM-30 8/26/2016 Upper Aquifer	HR-3 8/25/2016 Upper Aquifer	Duplicate 8/25/2016 Upper Aquifer	GM-21 8/22/2016 Upper Aquifer	GM-6 8/22/2016 Upper Aquifer	GM-8 8/22/2016 Upper Aquifer	GM-19S 8/22/2016 Upper Aquifer	Duplicate 8/22/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds												
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	10	< 1.0 U	7.1	8.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<2.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	10	7.6	6.6	7.2	< 1.0 U	< 1.0 U	0.37 J	3.4	2.5
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<2.0 U
Benzene	ug/L	5	< 1.0 U	< 2.0 U	8.9	< 2.0 U	<2.0 U	< 1.0 U	< 1.0 U	0.79 J	< 1.0 U	<2.0 U
cis-1,2-Dichloroethene	ug/L	70	13	**470**	< 1.0 U	**93**	**100**	< 1.0 U	0.29 J	< 1.0 U	44	40
Ethylbenzene	ug/L	700	< 1.0 U	< 2.0 U	4.7	< 2.0 U	<2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<2.0 U
Tetrachloroethene	ug/L	5	1.3	**13**	< 1.0 U	0.95 J	0.75 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<2.0 U
Toluene	ug/L	1,000	< 1.0 U	< 2.0 U	1.1	< 2.0 U	<2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<2.0 U
trans-1,2-Dichloroethene	ug/L	100	0.31 J	14	6.5	2.5	2.3	< 1.0 U	< 1.0 U	< 1.0 U	0.64 J	<2.0 U
Trichloroethene	ug/L	5	0.29 J	**360**	< 1.0 U	**200**	**200**	< 1.0 U	< 1.0 U	< 1.0 U	1.8	1.5 J
Vinyl chloride	ug/L	2	< 1.0 U	**42**	0.29 J	**4.2**	**4.7**	< 1.0 U	< 1.0 U	< 1.0 U	**4.6**	**2.5**
Xylene (total)	ug/L	10,000	< 2.0 U	< 4.0 U	9.6	< 4.0 U	<4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<4.0 U
Total Site-Specific VOCs	ug/L		15	919	39	314	323	Not Detected	0.29	1.2	54	47

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

	Units	MCL[1]	Closed North Settling Lagoon Monitoring Results								
			HR-4 8/19/2016 Upper Aquifer	W-2-N 8/15/2016 Upper Aquifer	W-3-N 8/19/2016 Upper Aquifer	W-4-N 8/19/2016 Upper Aquifer	HR-16 8/22/2016 Upper Aquifer	HR-17 8/25/2016 Upper Aquifer	W-2-S 8/23/2016 Upper Aquifer	W-3-S 8/23/2016 Upper Aquifer	W-4-S Upper Aquifer
Site-Specific Volatile Organic Compounds											
1,1,1-Trichloroethane	ug/L	200	2.0	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	1.4	< 2.0 U	1.6 J
1,1-Dichloroethane	ug/L		1.6	< 1.0 U	< 1.0 U	4.6	1.5	< 2.0 U	1.0	< 2.0 U	1.7 J
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U
cis-1,2-Dichloroethene	ug/L	70	0.42 J	2.8	22	9.5	1.0	< 2.0 U	1.9	2.1	12
Ethylbenzene	ug/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**170**	0.34 J	**62**	**54**
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	0.34 J	0.63 J	0.67 J	< 2.0 U	0.30 J	< 2.0 U	1.1 J
Trichloroethene	ug/L	5	0.36 J	1.6	< 1.0 U	**10**	3.6	< 2.0 U	**6.6**	**11**	**45**
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	1.9	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	< 2.0 U	< 4.0 U	< 4.0 U
Total Site-Specific VOCs	ug/L		4.4	4.4	24	25	6.8	170	12	75	115

NOTES:
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1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

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			Downgradient On-Site					Property Boundary	
			HR-1 8/23/2016 Upper Aquifer	GM-43 8/23/2016 Upper Aquifer	GM-35 8/23/2016 Upper Aquifer	HR-2 8/25/2016 Upper Aquifer	HR-7 8/15/2016 Upper Aquifer	GM-2 8/19/2016 Upper Aquifer	TW-2 8/17/2016 Upper Aquifer
	Units	MCL[1]							
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	1.1 J	1.6 J	<50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 2.0 U	0.72 J	19 J	9.5	0.34 J	0.43 J	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene	ug/L	5	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	3.3	11	**120**	2.9	1.9	8.9	< 1.0 U
Ethylbenzene	ug/L	700	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	5	**63**	**41**	**27 J**	< 1.0 U	< 1.0 U	**8.5**	< 1.0 U
Toluene	ug/L	1,000	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 2.0 U	0.83 J	<50 U	0.39 J	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**190**	**260**	**120**	< 1.0 UB	**7.0**	**6.3**	< 1.0 U
Vinyl chloride	ug/L	2	< 2.0 U	< 2.0 U	<50 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Xylene (total)	ug/L	10,000	< 4.0 U	< 4.0 U	<100 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		257	315	286	13	9.2	24	Not Detected

NOTES:
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1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

	Units	MCL[1]	Off-Site Downgradient of the Site						
			GM-16 8/18/2016 Upper Aquifer	GM-47 8/24/2016 Upper Aquifer	GM-50 8/23/2016 Upper Aquifer	GM-51 8/25/2016 Upper Aquifer	GM-52 8/25/2016 Upper Aquifer	GM-55 8/15/2016 Upper Aquifer	GM-63 8/24/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 2.0 U	< 1.0 U	1.2	< 1.0 U	< 1.0 U	2.2
1,1-Dichloroethane	ug/L		1.8	3.8	2.1	2.5	< 1.0 U	< 1.0 U	0.84 J
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U
Benzene	ug/L	5	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U
cis-1,2-Dichloroethene	ug/L	70	7.4	38	5.1	6.4	0.28 J	< 1.0 U	1.2 J
Ethylbenzene	ug/L	700	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U
Tetrachloroethene	ug/L	5	**23**	**39**	**14**	**6.5**	**30**	2.0	**38**
Toluene	ug/L	1,000	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	1.8 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U
Trichloroethene	ug/L	5	**5.7**	4.4	4.1	**33**	< 1.0 UB	< 1.0 U	**5.0**
Vinyl chloride	ug/L	2	0.31 J	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.7 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 3.3 U
Total Site-Specific VOCs	ug/L		38	87	25	50	30	2.0	47

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

	Units	MCL[1]	Off-Site Downgradient of the Site GM-65S 8/17/2016 Upper Aquifer	GM-78 8/25/2016 Upper Aquifer	GM-79 10/27/2016 Upper Aquifer	GM-80 10/27/2016 Upper Aquifer	Duplicate 10/27/2016 Upper Aquifer	GM-26 8/15/2016 Upper Aquifer
Site-Specific Volatile Organic Compounds								
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	0.70 J	0.54 J	0.55 J	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	2.6	0.60 J	0.64 J	< 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
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	7.4	3.6	3.7	< 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
Tetrachloroethene	ug/L	5	3.4	**6.2**	2.1	**20**	**20**	1.3
Toluene	ug/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<1.0 U	< 1.0 U
Trichloroethene	ug/L	5	< 1.0 U	< 1.0 U	**36**	**12**	**12**	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	<1.0 U	< 1.0 U
Xylene (total)	ug/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	<2.0 U	< 2.0 U
Total Site-Specific VOCs	ug/L		3.4	6.2	49	37	37	1.3

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

			Upgradient Contributions		On-Site Groundwater Quality				
	Units	MCL[1]	RMW-88 8/26/2016 Lower Aquifer	HR-12 8/16/2016 Lower Aquifer	GM-54 8/18/2016 Lower Aquifer	GM-68D 8/17/2016 Lower Aquifer	GM-75D 8/24/2016 Lower Aquifer	Duplicate 8/24/2016 Lower Aquifer	RMW-85 8/24/2016 Lower Aquifer
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 2.0 U	< 1.0 U	< 1.0 U	1.1	< 2.0 U	<2.0 U	< 2.0 U
1,1-Dichloroethane	ug/L		24	3.1	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
1,1-Dichloroethene	ug/L	7	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
Benzene	ug/L	5	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
cis-1,2-Dichloroethene	ug/L	70	55	1.8	< 1.0 U	< 1.0 U	9.6	9.6	18
Ethylbenzene	ug/L	700	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
Tetrachloroethene	ug/L	5	< 2.0 U	< 1.0 U	**61**	**31**	**200**	**180**	**62**
Toluene	ug/L	1,000	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
trans-1,2-Dichloroethene	ug/L	100	3.2	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
Trichloroethene	ug/L	5	< 2.0 U	< 1.0 U	1.6	2.6	**220**	**190**	**110**
Vinyl chloride	ug/L	2	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	<2.0 U	< 2.0 U
Xylene (total)	ug/L	10,000	< 4.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 4.0 U	<4.0 U	< 4.0 U
Total Site-Specific VOCs	ug/L		82	4.9	63	35	430	380	190

NOTES:
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BOLD - Result above MCL.
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.
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.

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	Units	MCL[1]	Lower Aquifer Groundwater Quality						
			HR-15 8/19/2016 Lower Aquifer	GM-19D 8/16/2016 Lower Aquifer	RMW-86 8/17/2016 Lower Aquifer	Duplicate 8/17/2016 Lower Aquifer	RMW-87 8/19/2016 Lower Aquifer	GM-15 8/18/2016 Lower Aquifer	GM-20D 8/19/2016 Lower Aquifer
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	7.9	7.9	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	13	13	7.8	2.0	< 1.0 U
1,1-Dichloroethene	ug/L	7	< 1.0 U	< 1.0 U	1.9	<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
cis-1,2-Dichloroethene	ug/L	70	3.6	2.4	39	40	43 K	8.3	< 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
Tetrachloroethene	ug/L	5	< 1.0 U	0.62 J	**59**	**60**	< 1.0 U	< 1.0 U	1.3
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
trans-1,2-Dichloroethene	ug/L	100	< 1.0 U	< 1.0 U	1.6	1.5	2.3	0.75 J	< 1.0 U
Trichloroethene	ug/L	5	1.5	4.9	**120**	**120**	**11**	**6.3**	1.5
Vinyl chloride	ug/L	2	0.90 J	**6.2**	0.42 J	0.44 J	0.35 J	0.69 J	< 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
Total Site-Specific VOCs	ug/L		6.0	14	243	243	64	18	2.8

NOTES:
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BOLD - Result above MCL.
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.
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.

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	Units	MCL[1]	Downgradient Groundwater Quality GM-9 8/17/2016 Lower Aquifer	DN-13 8/25/2016 Lower Aquifer	GM-83D 8/19/2016 Lower Aquifer	GM-84 8/17/2016 Lower Aquifer	GM-77D 8/17/2016 Lower Aquifer	GM-11 8/18/2016 Lower Aquifer
Site-Specific Volatile Organic Compounds								
1,1,1-Trichloroethane	ug/L	200	1.0	0.97 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	1.3	< 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
Benzene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	5.6	< 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
Tetrachloroethene	ug/L	5	< 1.0 U	1.5	< 1.0 U	< 1.0 U	**17**	1.2
Toluene	ug/L	1,000	< 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	0.37 J	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	5	**13**	**8.1**	< 1.0 U	4.7	< 1.0 U	**12**
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	**3.1**	< 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
Total Site-Specific VOCs	ug/L		14	18	3.1	4.7	17	13

NOTES:
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BOLD - Result above MCL.
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.
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.

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	Units	MCL[1]	EQUIPMENT BLANK 8/15/2016 QA/QC	EQUIPMENT BLANK 8/15/2016 QA/QC	EQUIPMENT BLANK 8/16/2016 QA/QC	EQUIPMENT BLANK 8/16/2016 QA/QC	EQUIPMENT BLANK 8/17/2016 QA/QC	EQUIPMENT BLANK 8/17/2016 QA/QC	EQUIPMENT BLANK 8/18/2016 QA/QC
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-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
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
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
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
Trichloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
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
Total Site-Specific VOCs	ug/L		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

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	Units	MCL[1]	EQUIPMENT BLANK 8/18/2016 QA/QC	EQUIPMENT BLANK 8/19/2016 QA/QC	EQUIPMENT BLANK 8/19/2016 QA/QC	EQUIPMENT BLANK 8/22/2016 QA/QC	EQUIPMENT BLANK 8/22/2016 QA/QC	EQUIPMENT BLANK 8/23/2016 QA/QC	EQUIPMENT BLANK 8/23/2016 QA/QC
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-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
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
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
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
Trichloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
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
Total Site-Specific VOCs	ug/L		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

	Units	MCL[1]	EQUIPMENT BLANK 8/24/2016 QA/QC	EQUIPMENT BLANK 8/24/2016 QA/QC	EQUIPMENT BLANK 8/25/2016 QA/QC	EQUIPMENT BLANK 8/25/2016 QA/QC	EQUIPMENT BLANK 8/26/2016 QA/QC	TRIP BLANK 8/15/2016 QA/QC	TRIP BLANK 8/17/2016 QA/QC
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-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
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
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	0.31 J	< 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
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
Trichloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	0.36 J	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
Total Site-Specific VOCs	ug/L		Not Detected	Not Detected	Not Detected	0.36	0.31	Not Detected	Not Detected

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

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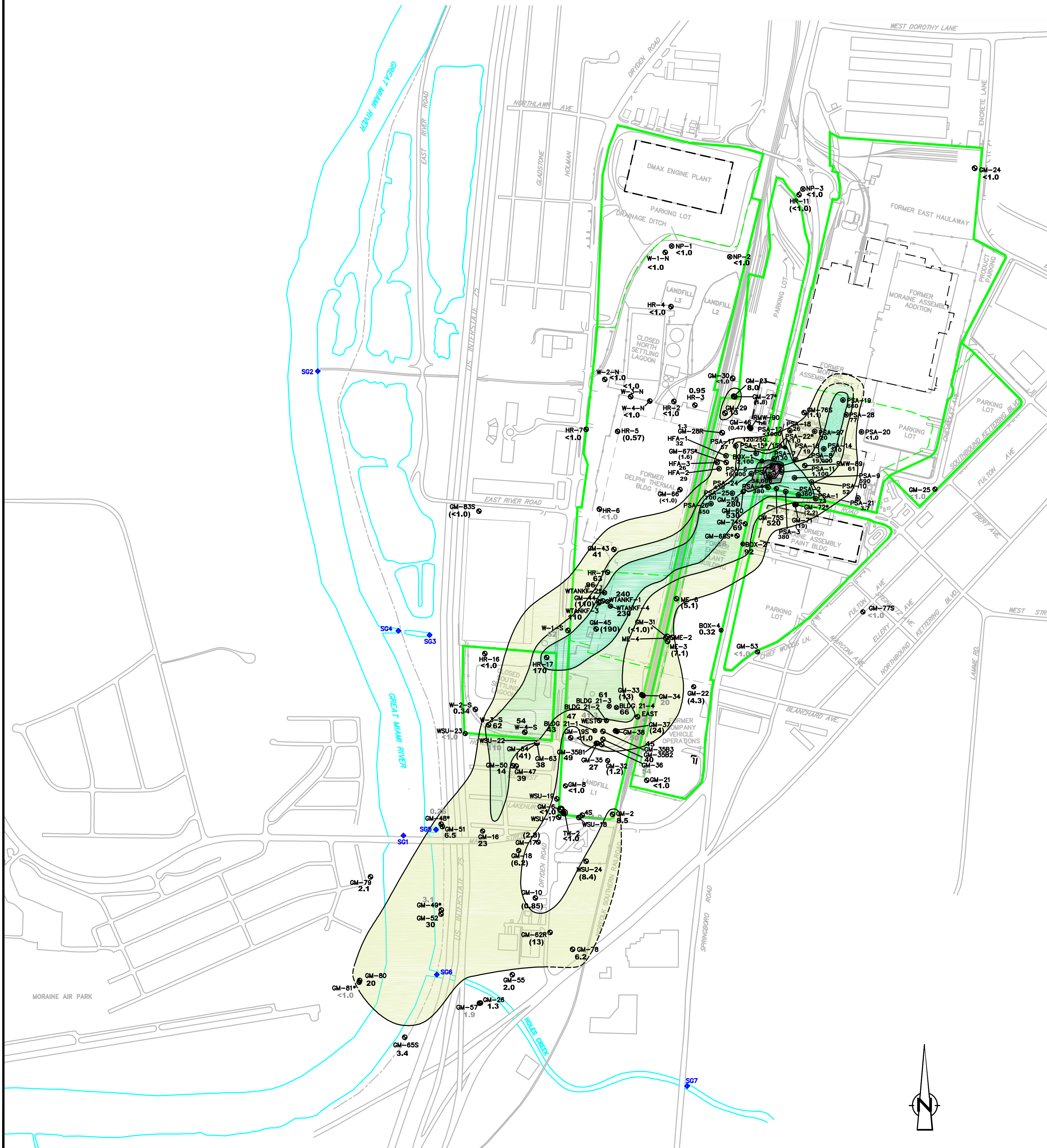
	Units	MCL[1]	TRIP BLANK 8/18/2016 QA/QC	TRIP BLANK 8/19/2016 QA/QC	TRIP BLANK 8/22/2016 QA/QC	TRIP BLANK 8/22/2016 QA/QC	TRIP BLANK 8/23/2016 QA/QC	TRIP BLANK 8/24/2016 QA/QC	Trip Blank 10/27/2016 QA/QC
Site-Specific Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L		< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-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
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
cis-1,2-Dichloroethene	ug/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
Tetrachloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
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
Trichloroethene	ug/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
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
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
Total Site-Specific VOCs	ug/L		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected.

NOTES:
< - Constituent not detected above laboratory reporting limit shown.
1 - A MCL is not listed for 1,1-dichloroethane.
BOLD - Result above MCL.
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.
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.

APPENDIX E

Isoconcentration Maps

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-A.dwg LAYOUT: UPPER PCE 2016 SAVED: 2/17/2017 7:25 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 10:50 AM BY: SMITH, BOB



LEGEND

⊕	MONITORING WELL (UPPER AQUIFER)
●	INACTIVE RECOVERY WELL (TW-2)
⊕ (blue)	STREAM GAUGE
⊗/⊙	BORING LOCATION
— - —	RIVER LEVEE
— —	FORMER BUILDING FOOTPRINT
—— (cyan)	SURFACE WATER FEATURE
—— (green)	PROPERTY BOUNDARY
— — (green)	PARCEL BOUNDARY
ug/L	MICROGRAMS PER LITER
<1.0	CONSTITUENT NOT DETECTED ABOVE LABORATORY LIMIT SHOWN
MCL	MAXIMUM CONTAMINANT LEVEL
<1.0	2016 CONCENTRATIONS
(<1.0)	2015-2013 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 2016 MONITORING WELL RESULTS, 2015 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

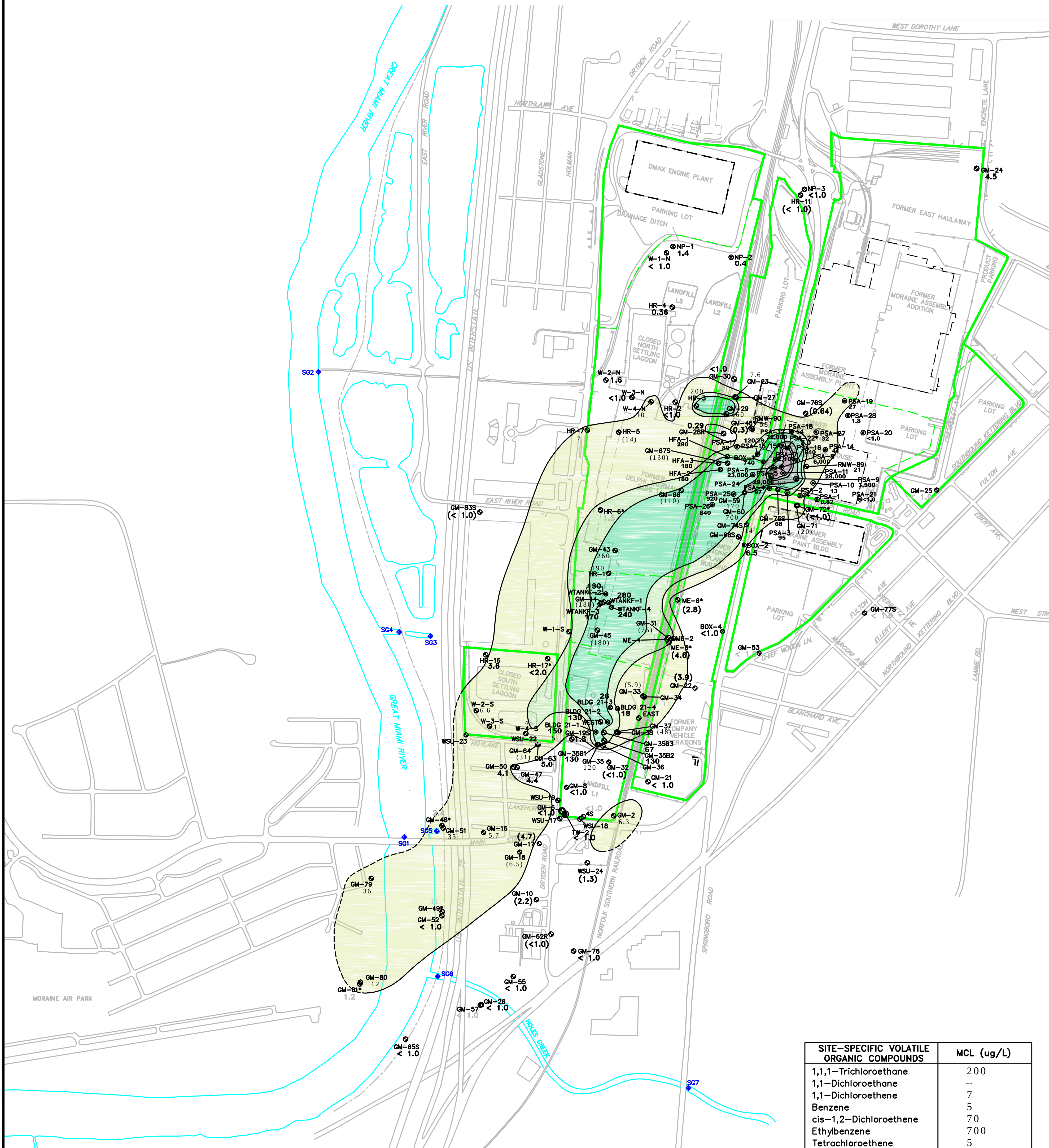
OH000294.2017

ISOCONCENTRATION MAP (UPPER AQUIFER) TETRACHLOROETHENE - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-1

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-A.dwg LAYOUT: UPPER TCE 2016 SAVED: 2/17/2017 7:25 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 10:52 AM BY: SMITH, BOB



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 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	2016 CONCENTRATIONS
(<1.0)	2015-2013 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 2016 MONITORING WELL RESULTS, 2015 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.

0 200 1000ft

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ISOCONCENTRATION MAP (UPPER AQUIFER) TRICHLOROETHENE - 2016

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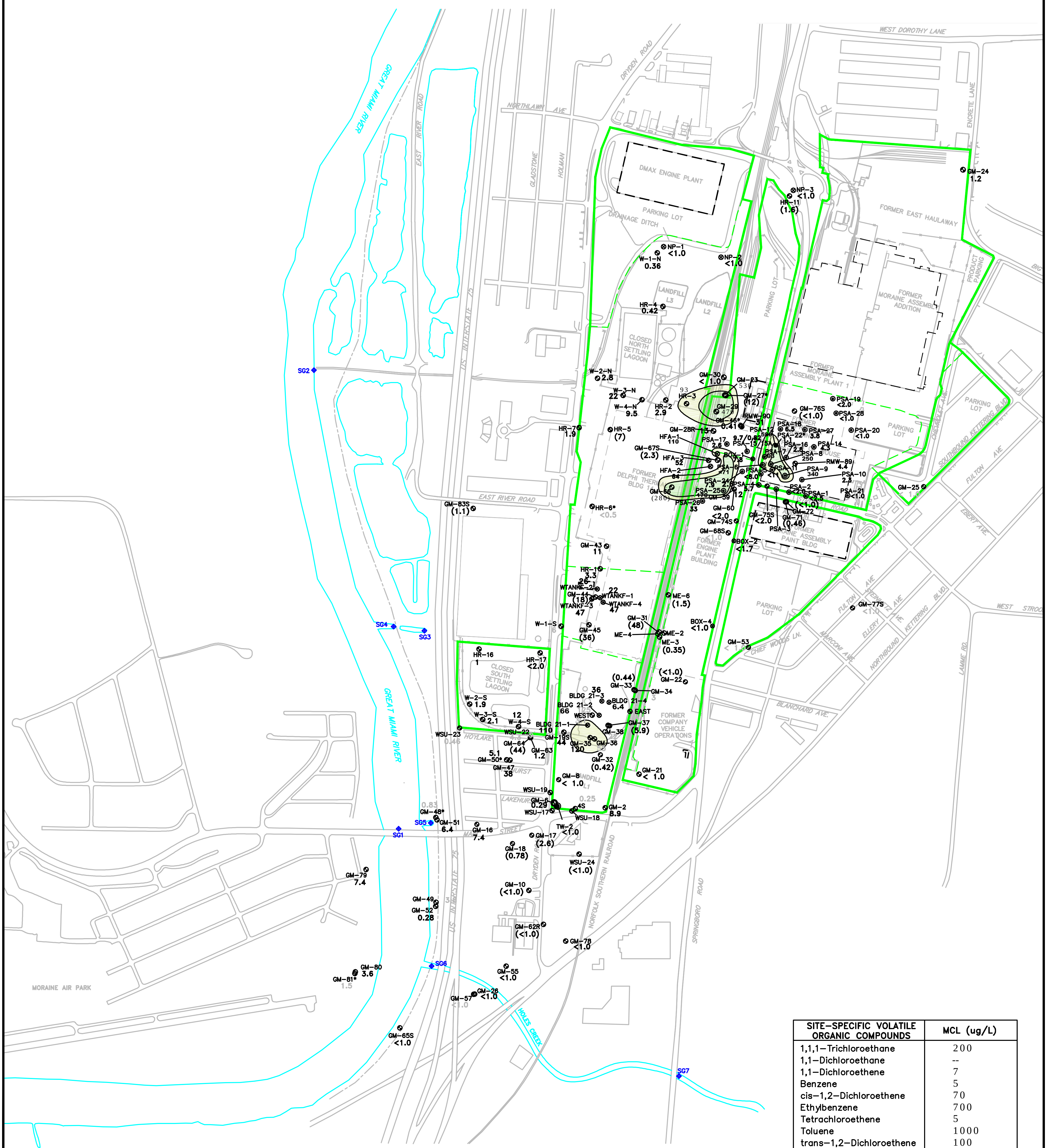
FIGURE
E-2

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-A.dwg LAYOUT: SHAL CIS-1-2-D 2016 SAVED: 2/14/2017 2:25 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:23 AM BY: SMITH, BOB



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 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 2016 CONCENTRATIONS
- (<1.0) 2015–2013 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

NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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.

0 200 1000ft

RACER TRUST
MORAINE, OHIO

OH000294.2017

ISOCONCENTRATION MAP (UPPER AQUIFER) cis-1,2-DICHLOROETHENE - 2016

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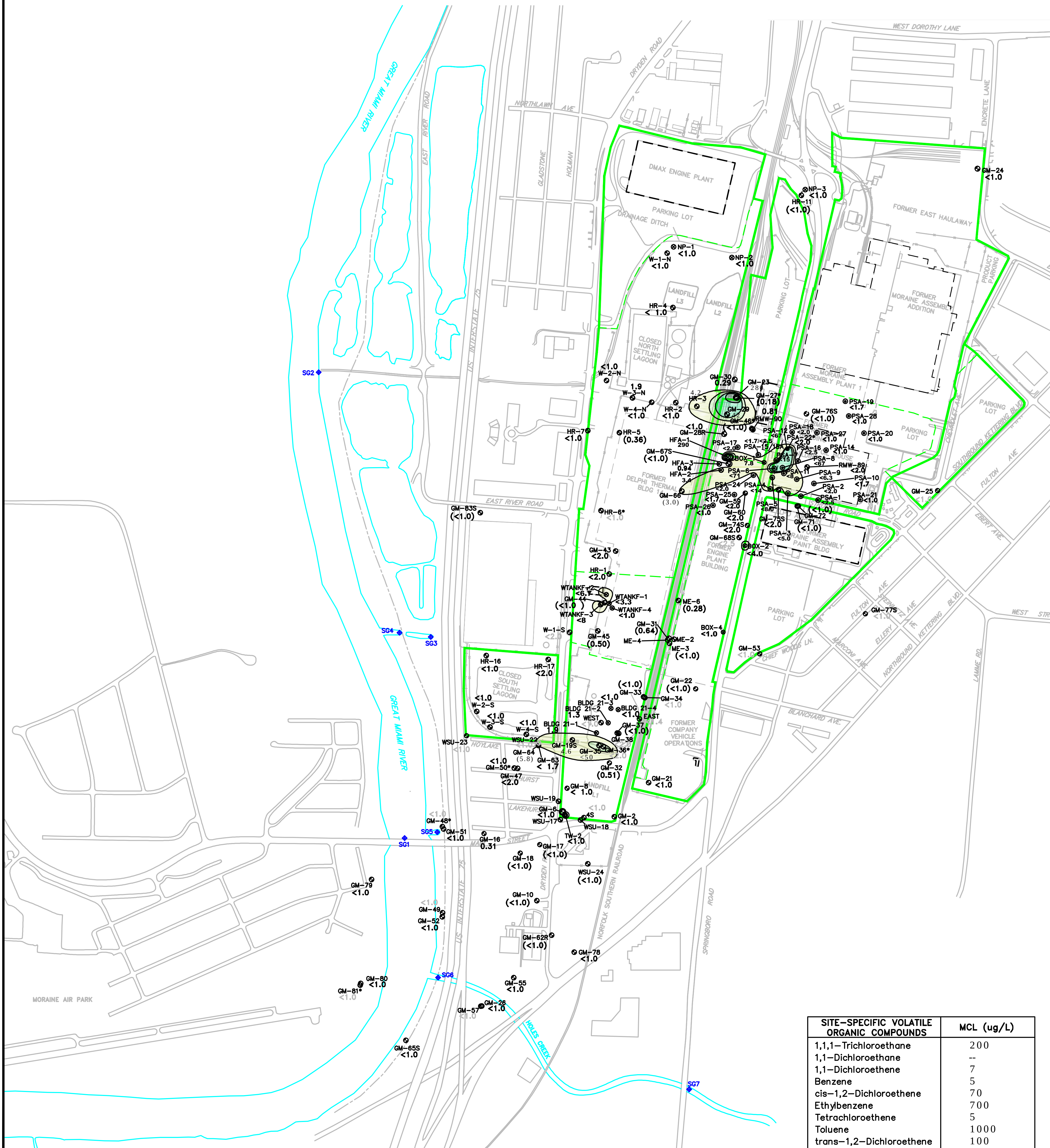
FIGURE
E-3

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-A.dwg LAYOUT: SHAL VINYL CHLORIDE 2016 SAVED: 2/14/2017 2:25 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:24 AM BY: SMITH, BOB



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 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 — 2016 CONCENTRATIONS
- (<1.0) — 2015–2013 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

0 200 1000ft

NOTE:
1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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.

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ISOCONCENTRATION MAP (UPPER AQUIFER) VINYL CHLORIDE - 2016

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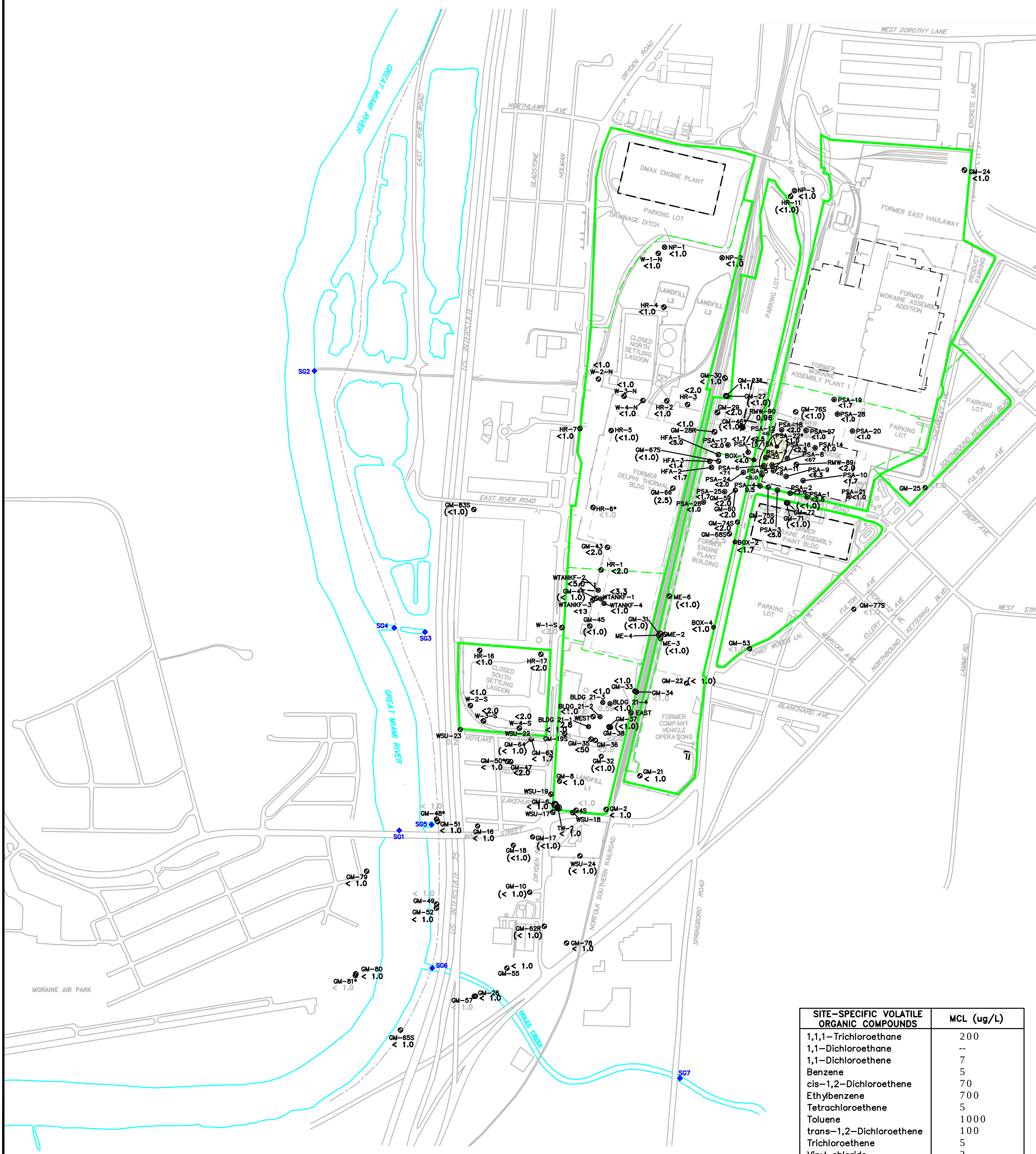
FIGURE
E-4

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-A.dwg LAYOUT: SHAL 1-1-D 2016 SAVED: 2/14/2017 2:25 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:24 AM BY: SMITH, BOB



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 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	2016 CONCENTRATIONS
(<1.0)	2015–2013 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 2016 MONITORING WELL RESULTS, 2015 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.

N

0 200 1000ft

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MORAINE, OHIO

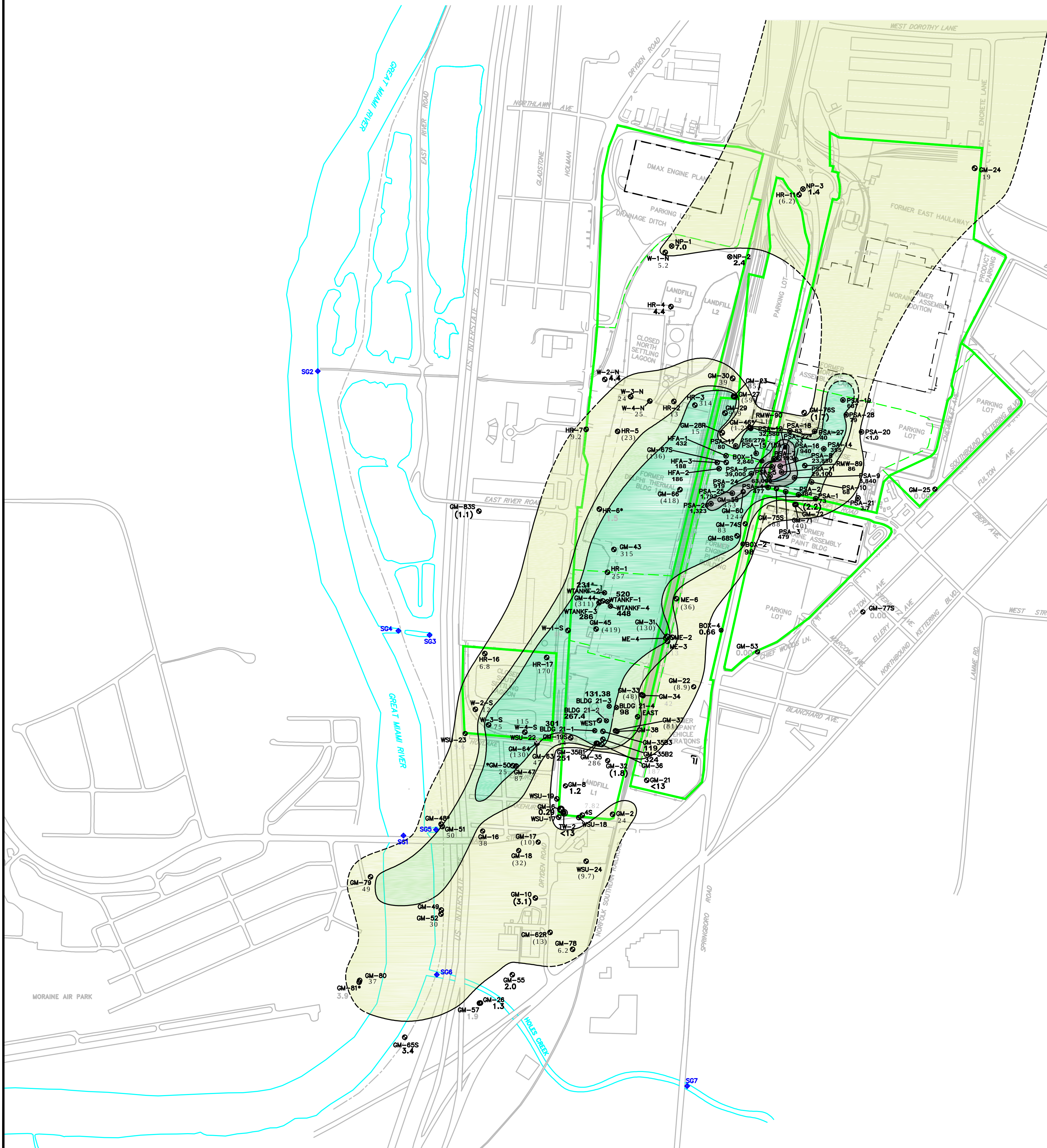
OH000294.2017

ISOCONCENTRATION MAP (UPPER AQUIFER) 1,1-DICHLOROETHENE - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-5

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-A.dwg LAYOUT: UPPER TOTAL VOCS SAVED: 2/17/2017 7:25 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 10:53 AM BY: SMITH, BOB



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	2016 CONCENTRATIONS
(<1.0)	2015–2013 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

N

0 200 1000ft

NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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.

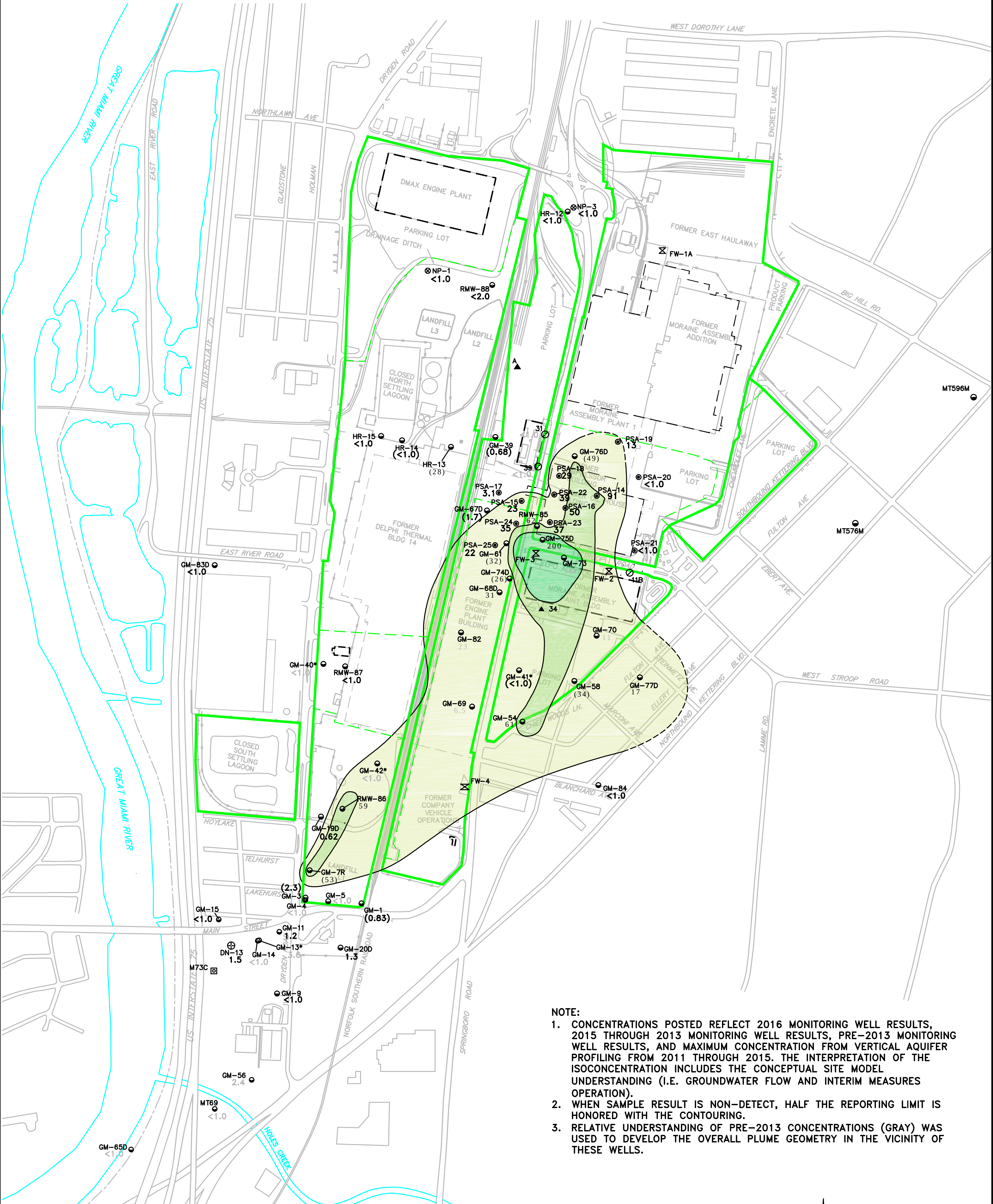
RACER TRUST
MORAINE, OHIO

OH000294.2017

ISOCONCENTRATION MAP (UPPER AQUIFER) TOTAL CHLORINATED VOCs - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-6



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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 2016 CONCENTRATIONS
- (<1.0) 2015–2013 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

N

0 100 850ft

RACER TRUST
MORAINE, OHIO

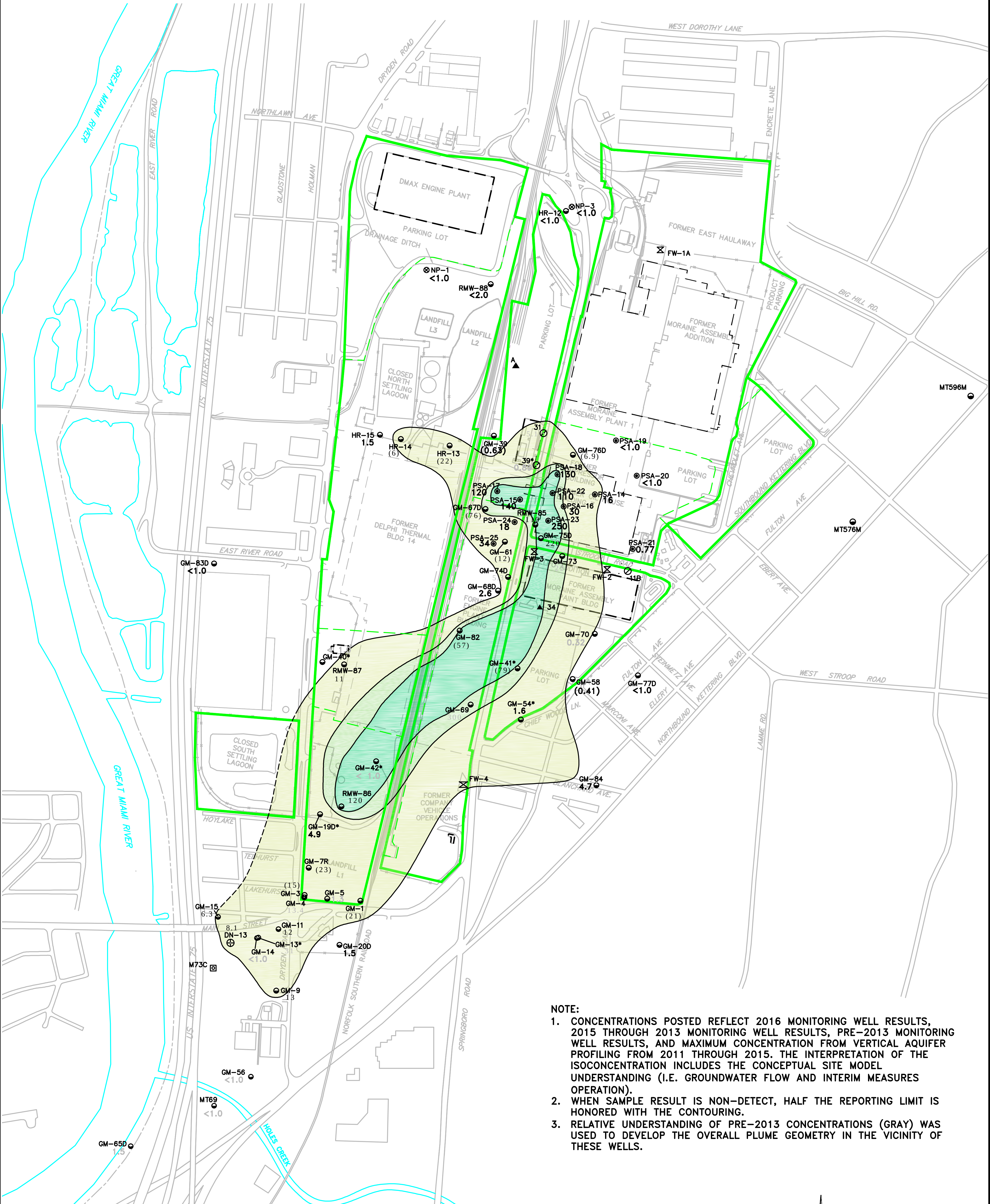
OH000294.2017

ISOCONCENTRATION MAP (LOWER AQUIFER) TETRACHLOROETHENE - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-7

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-B.dwg LAYOUT: TCE 2016 SAVED: 2/16/2017 2:11 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:25 AM BY: SMITH, BOB



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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 2016 CONCENTRATIONS
- (<1.0) 2015–2013 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

N

0 100 850ft

RACER TRUST
MORAINE, OHIO

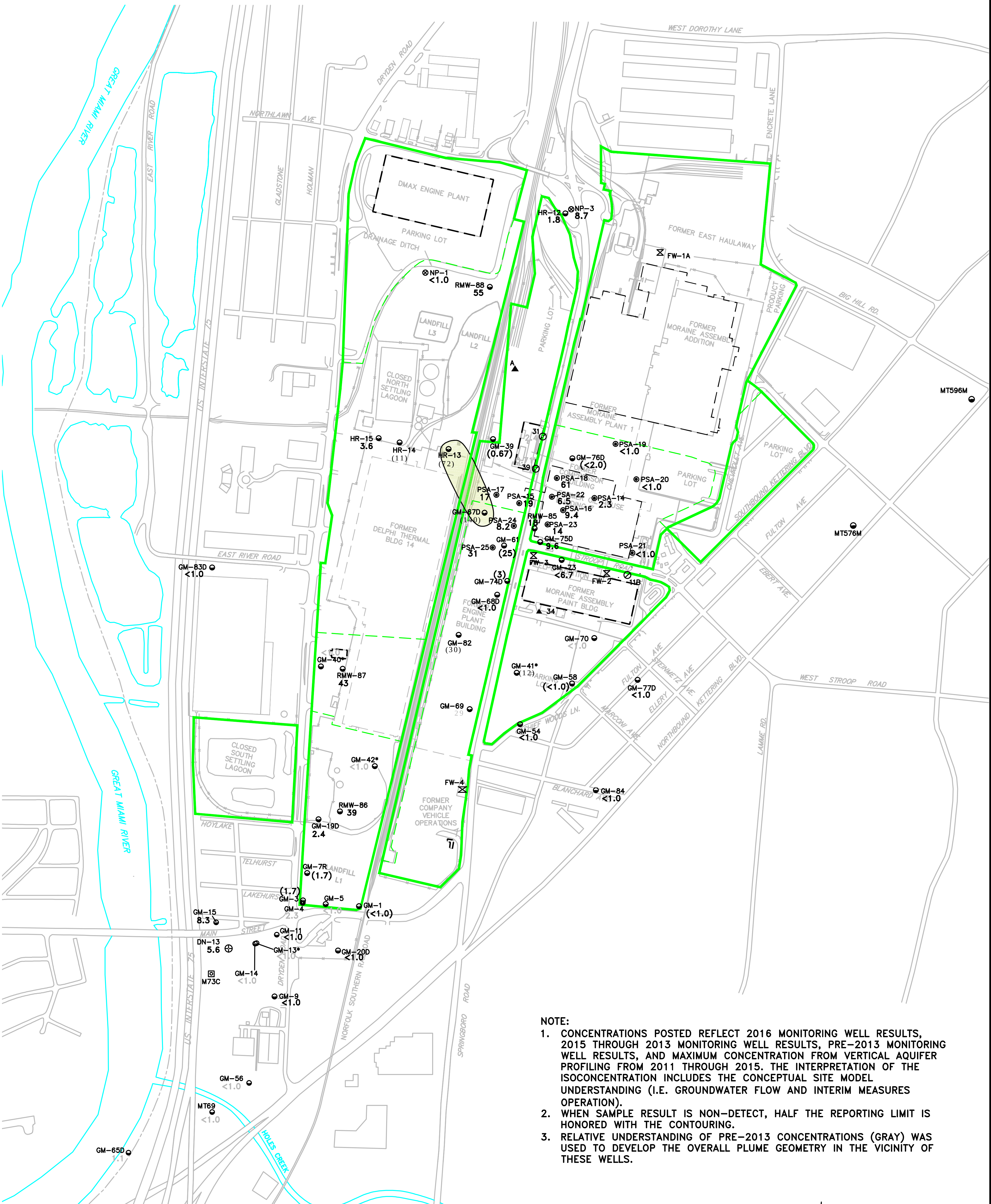
OH000294.2017

ISOCONCENTRATION MAP (LOWER AQUIFER) TRICHLOROETHENE - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-8

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-B.dwg LAYOUT: CIS-1-2-DICHLOROETHENE SAVED: 2/16/2017 2:11 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:26 AM BY: SMITH, BOB



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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 2016 CONCENTRATIONS
- (<1.0) 2015–2013 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

0 100 850ft

RACER TRUST
MORAINE, OHIO

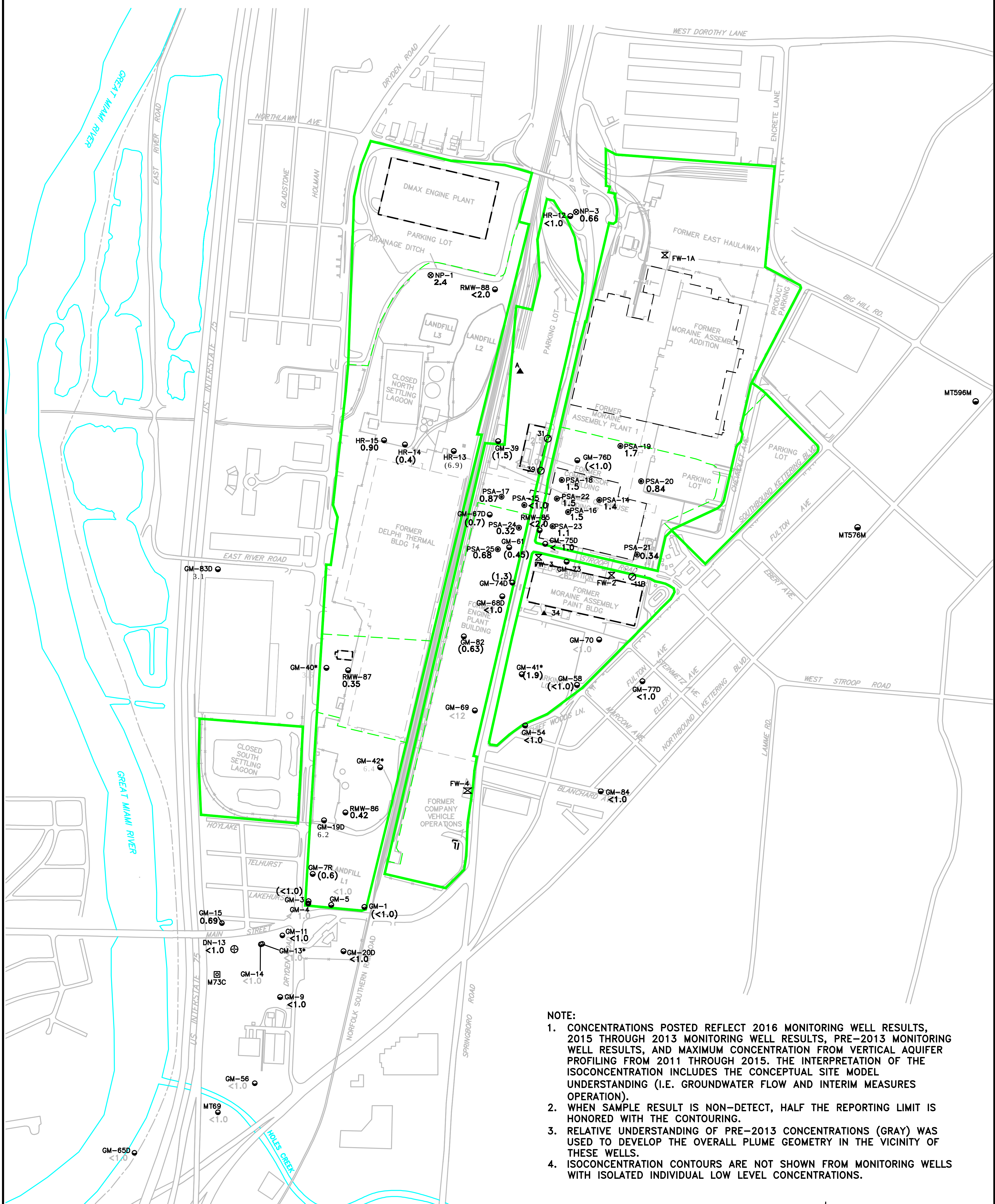
OH000294.2017

ISOCONCENTRATION MAP (LOWER AQUIFER) cis-1,2-DICHLOROETHENE -2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-9

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-B.dwg LAYOUT: VINYL CHLORIDE SAVED: 2/16/2017 2:11 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:26 AM BY: SMITH, BOB



NOTE:
1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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 2016 CONCENTRATIONS
- (<1.0) 2015–2013 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

N

0 100 850ft

RACER TRUST
MORAINE, OHIO

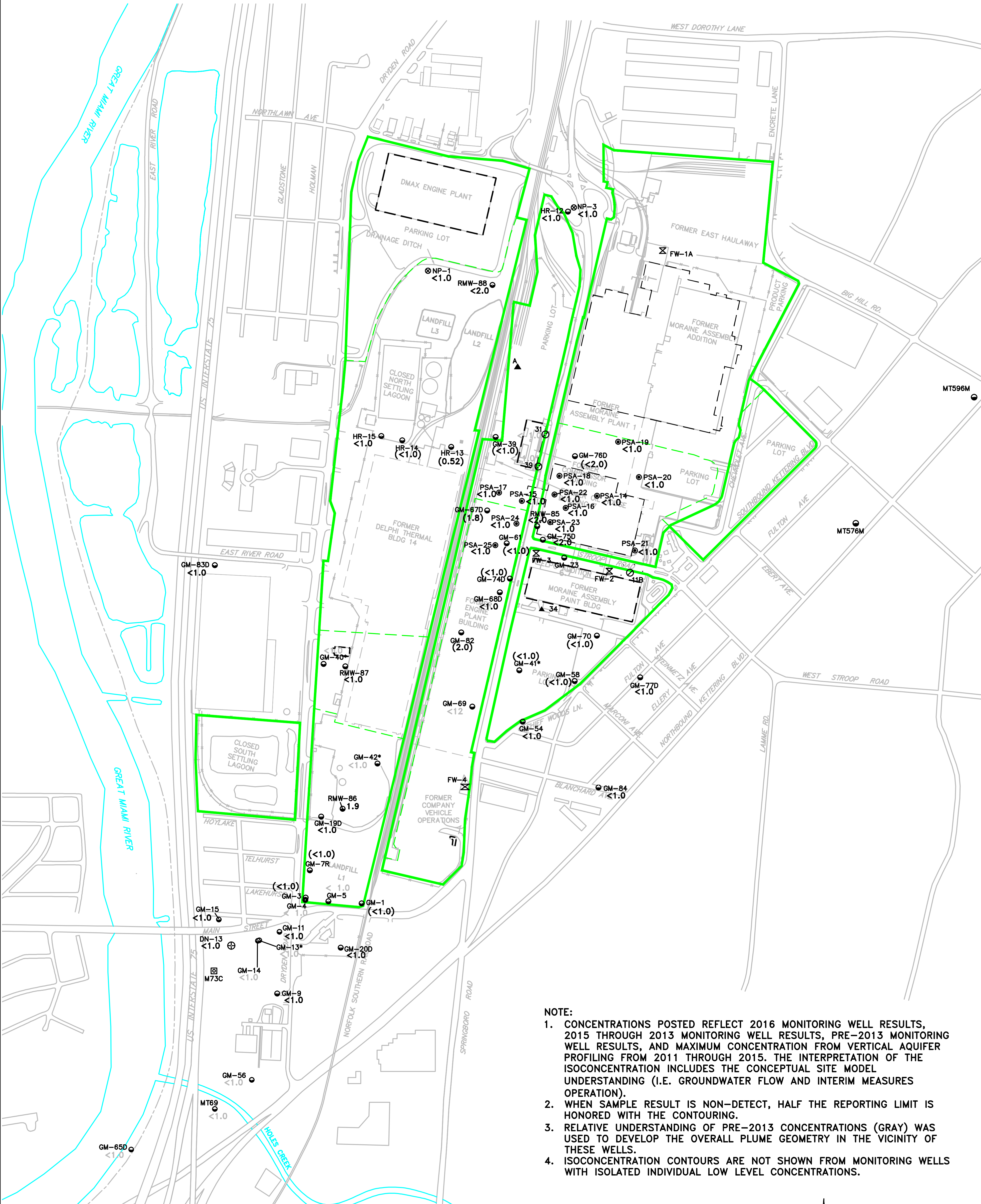
OH000294.2017

ISOCONCENTRATION MAP (LOWER AQUIFER) VINYL CHLORIDE - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-10

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-B.dwg LAYOUT: 1-1-DICHLOROETHENE SAVED: 2/16/2017 2:11 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:27 AM BY: SMITH, BOB



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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 2016 CONCENTRATIONS
- (<1.0) 2015–2013 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

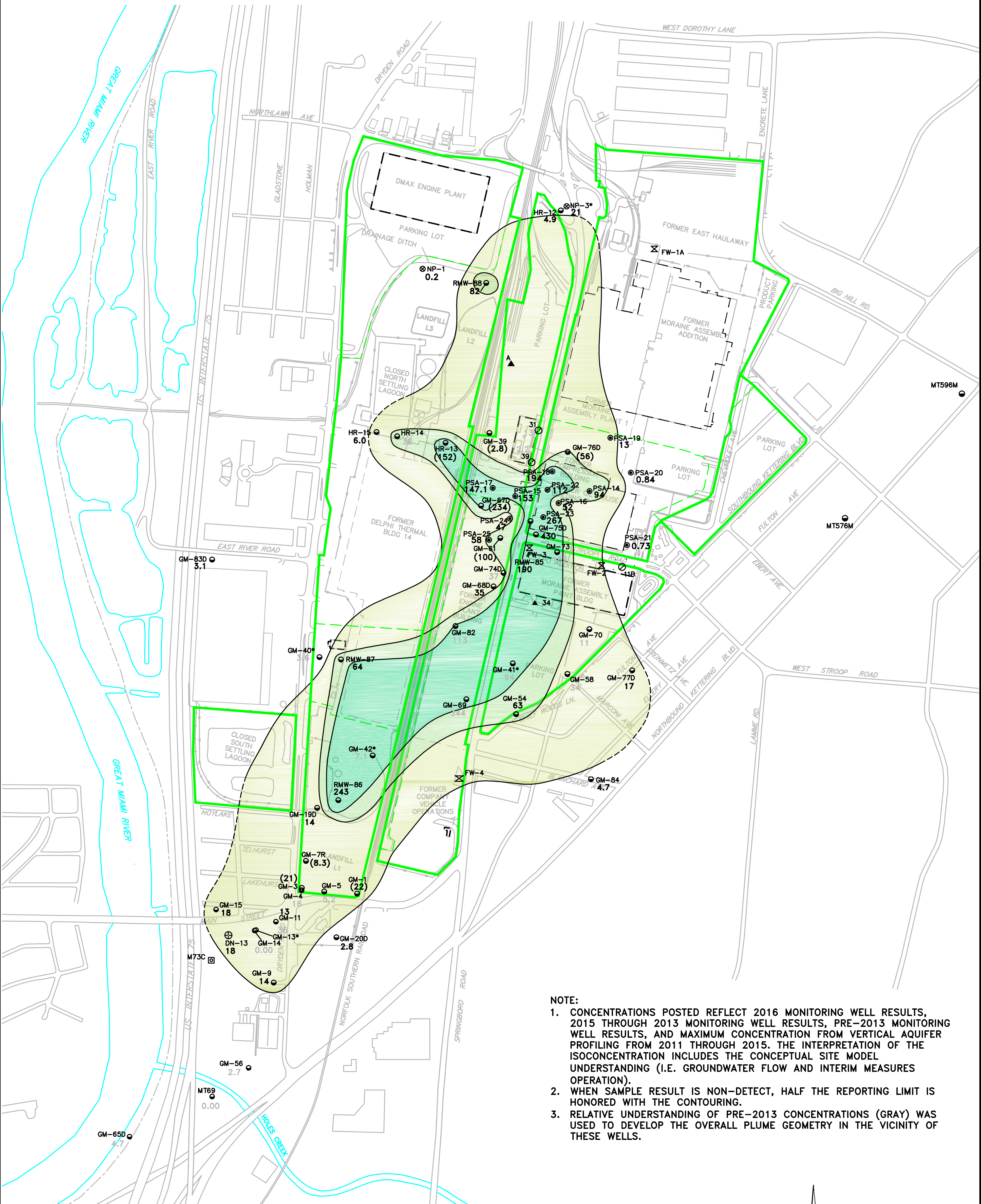
OH000294.2017

ISOCONCENTRATION MAP (LOWER AQUIFER) 1,1-DICHLOROETHENE - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-11

CITY:DUBLIN DIV/GROUP:SER2 DB:R. SMITH LD:(Opt) PIC:(Opt) PM:N. GILLOTTI TM:T. FORTNER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Columbus-OH\ACT\OH000294 - RACER\0004B\ANN294-04B-2017-05-B.dwg LAYOUT: TOTAL VOCS 2016 SAVED: 2/16/2017 2:11 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB PLOTTED: 2/17/2017 7:27 AM BY: SMITH, BOB



NOTE:

1. CONCENTRATIONS POSTED REFLECT 2016 MONITORING WELL RESULTS, 2015 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
ug/L MICROGRAMS PER LITER
VOCs VOLATILE ORGANIC COMPOUNDS
>100 ug/L
50-100 ug/L
5-50 ug/L

<1.0 2016 CONCENTRATIONS
(<1.0) 2015-2013 CONCENTRATIONS
<1.0 PRE-2013 CONCENTRATIONS
* THE SAMPLE INTERVAL IS LOCATED VERTICALLY ABOVE OR BELOW THE INTERPRETED REPRESENTATIVE CONCENTRATION USED FOR CONTOURING

RACER TRUST
MORAINE, OHIO

OH000294.2017

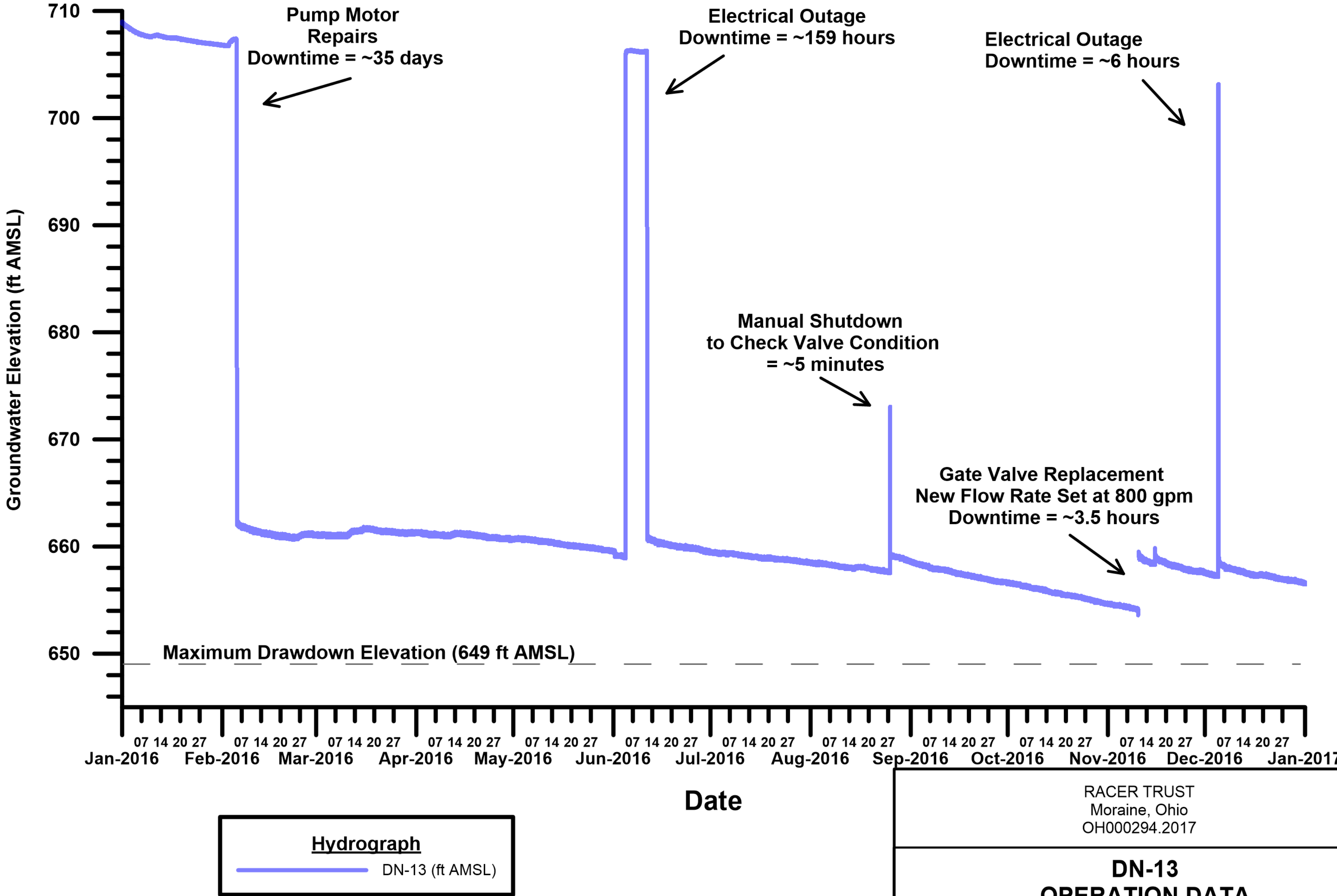
ISOCONCENTRATION MAP (LOWER AQUIFER) TOTAL CHLORINATED VOCs - 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
E-12

APPENDIX F

DN-13 Pumping Well Operation and Maintenance



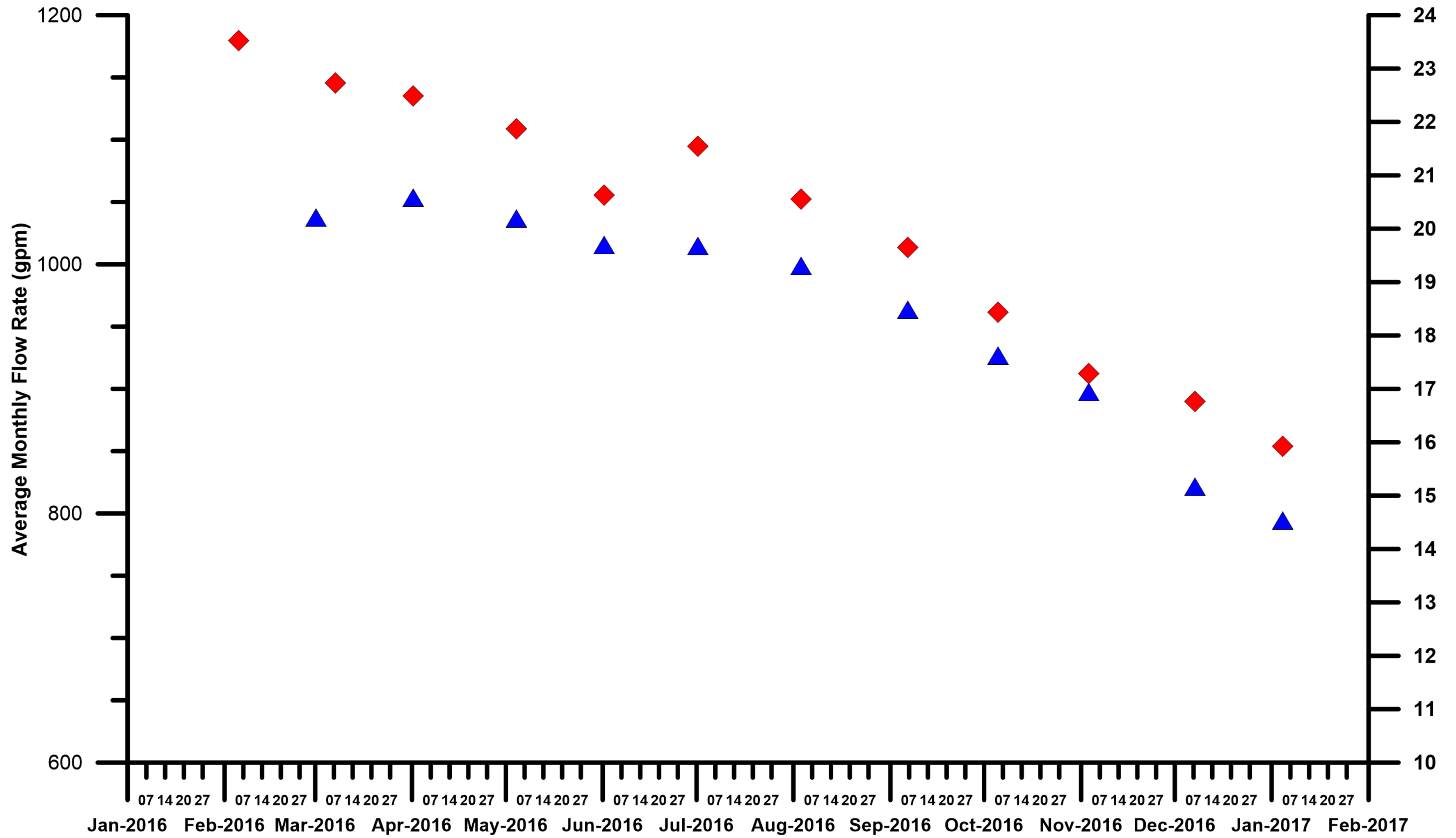
Note: DN-13 Screen Elevation from 619 to 559 feet AMSL

RACER TRUST
Moraine, Ohio
OH000294.2017

DN-13
OPERATION DATA
WATER-LEVEL ELEVATION

ARCADIS

FIGURE
F-1



DN-13 Flow Rate and Specific Capacity

- Specific Capacity (gpm/ft)
- Average Monthly Flow Rate (gpm)

Notes:
1. Specific Capacity in gallons per minute per foot (gpm/ft)
2. Flow Rate in gallons per minute (gpm)
3. Measurements are taken near the end or beginning of each reporting month

RACER TRUST
Moraine, Ohio
OH000294.2017

DN-13 OPERATION DATA FLOW RATE AND SPECIFIC CAPACITY

ARCADIS

FIGURE
F-2

APPENDIX G

Capture Zone Trends

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

GM-9		GM-15		GM-20D	
Date	µg/L	Date	µg/L	Date	µg/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

ABBREVIATIONS:

µg/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 G-2
Summary of Statistics and Trend Results
RACER Trust Moraine Facilities
Moraine, Ohio

Well ID	Analyte	Date Range	Figure	n	Detected Results Summary (µg/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 - 08/16	G-1	17	8.4 - 22.3	16.9	3.7	0.22	NST	0.484	-2	NST	-0.0000337
GM-15	Total VOCs	09/99 - 08/16	G-2	18	6.9 - 18	9.7	3.1	0.32	NST	0.425	6	NST	0.0000669
GM-20D	Total VOCs	09/99 - 08/16	G-3	18	0 - 20.1	9.1	5.3	0.58	DWN	0.003	-73	DWN	-0.00262
After July 2008													
GM-09	Total VOCs	09/08 - 08/16	G-4	8	13.2 - 20.8	17.1	2.9	0.17	NST	0.138	-10	NST	-0.00154
GM-15	Total VOCs	09/08 - 08/16	G-5	9	6.9 - 18	10.5	4.2	0.40	UP	0.030	19	NST	0.00187
GM-20D	Total VOCs	09/08 - 08/16	G-6	9	2.8 - 10	6.5	2.7	0.42	DWN	0.001	-28	DWN	-0.00261

ABBREVIATIONS:

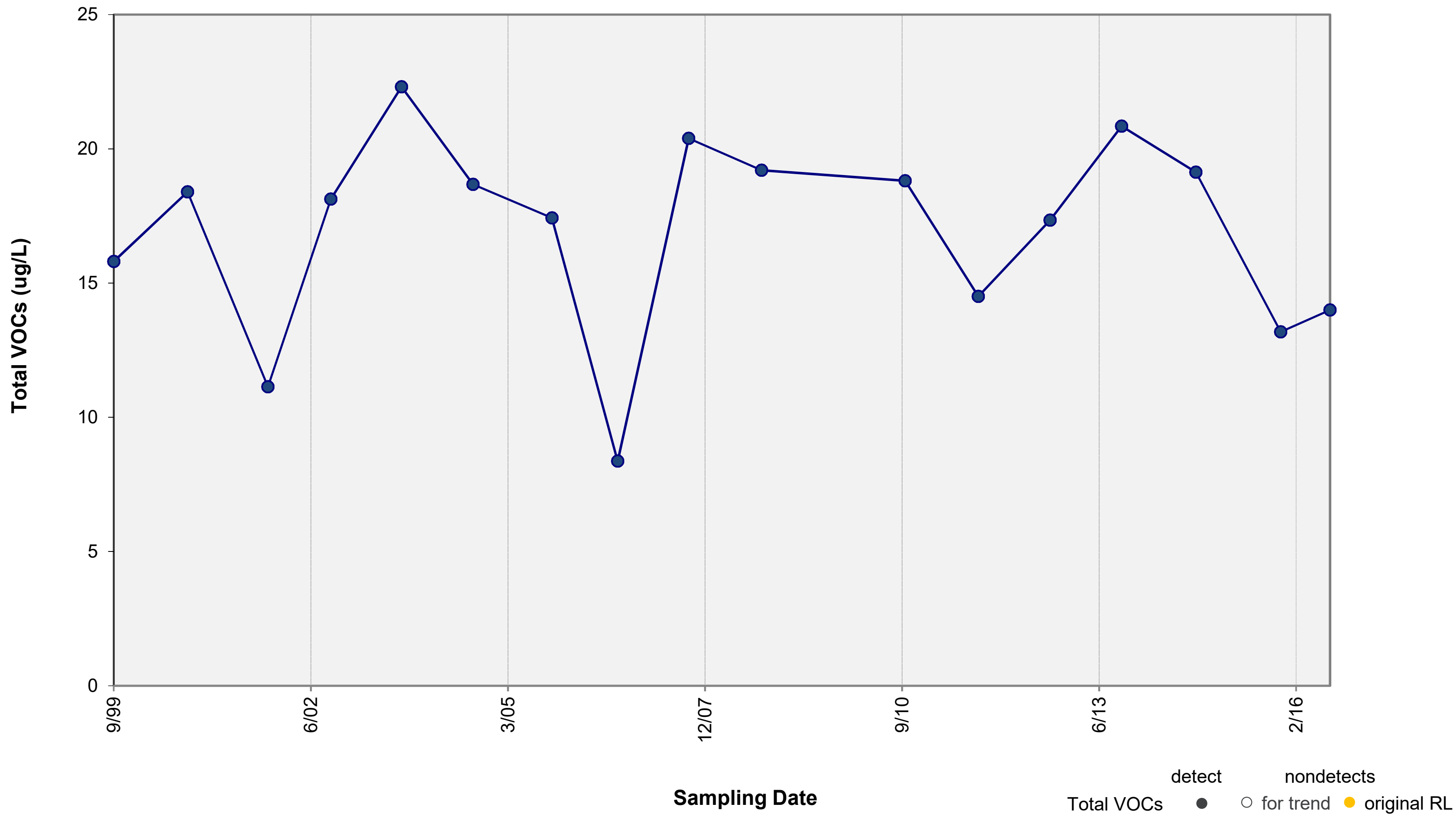
CV = coefficient of variation
mean = arithmetic mean
n = sample size
SD = standard deviation
NST = no significant trend
DWN = downward trend
UP = upward trend

NOTES:

1. All analytical results are in µg/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 = 0.484 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 = -3.4E-05 ug/L Per Day

95% Confidence Interval = -1.1E-03 to 7.5E-04 ug/L Per Day

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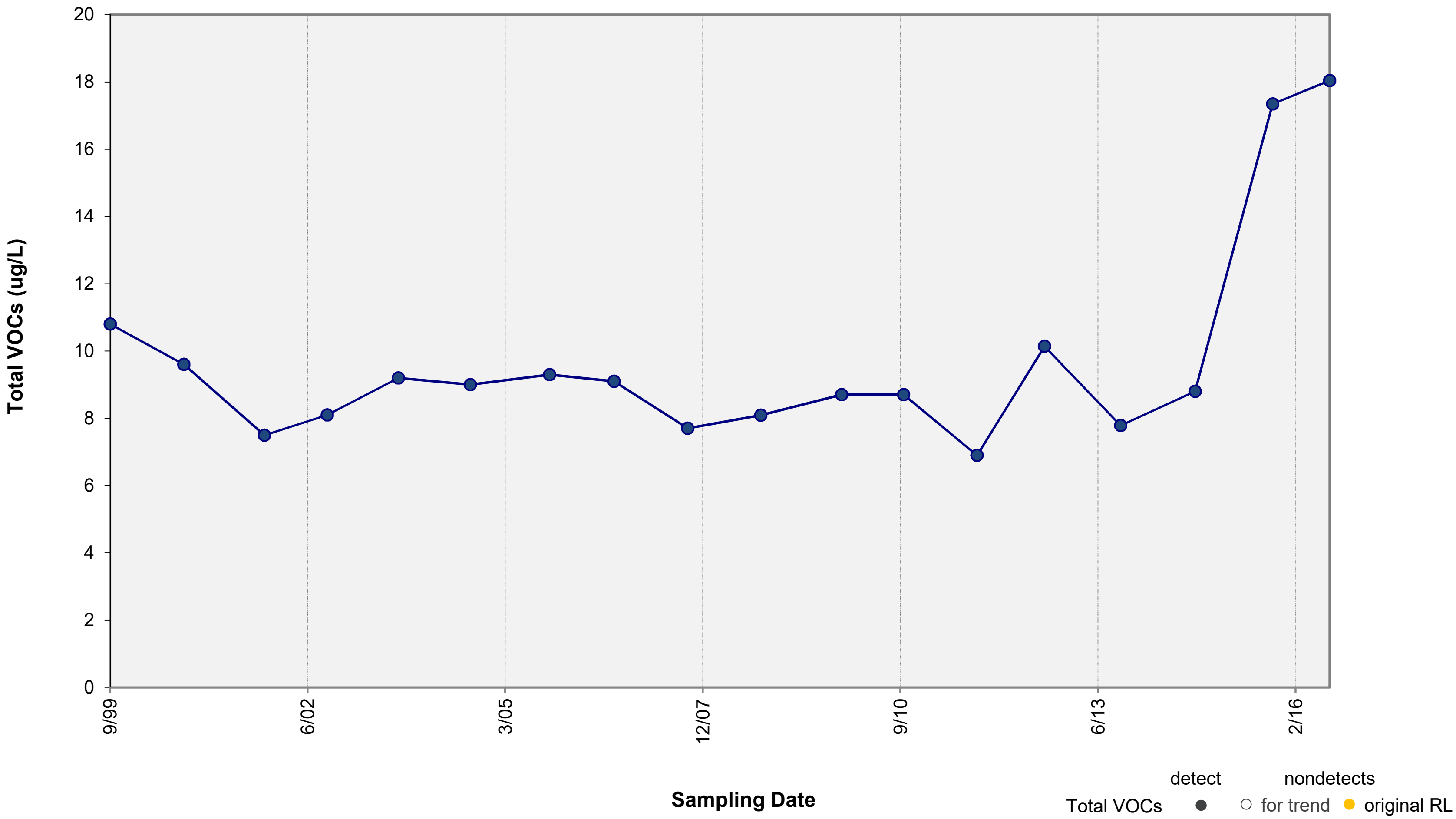
Concentration vs. Time Plot – Total VOCs in Well GM-09

RACER Trust, Moraine, Ohio

Figure G-1



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

p value = 0.425 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 = 6.7E-05 ug/L Per Day

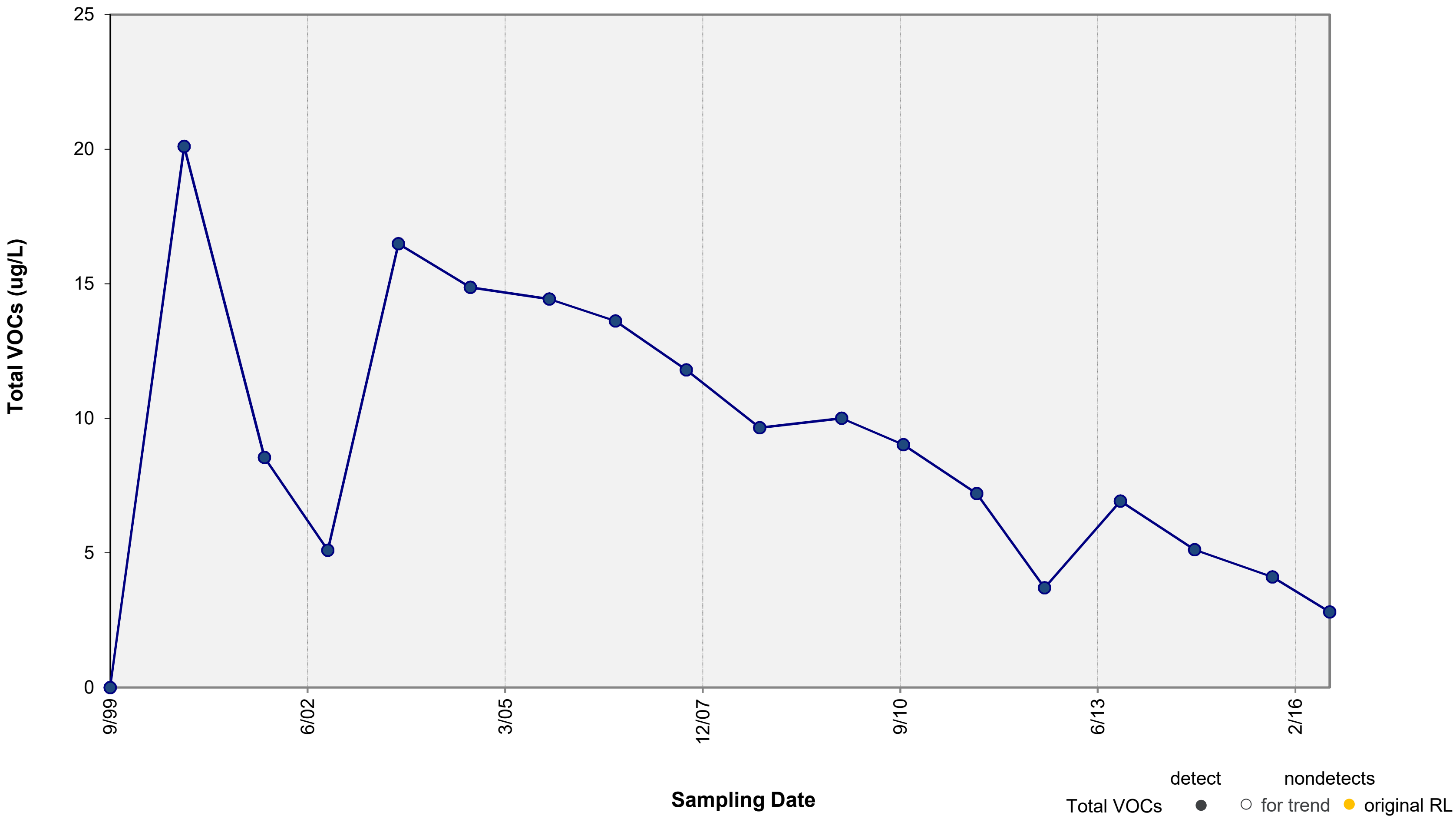
95% Confidence Interval = -3.5E-04 to 9.6E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure G-2



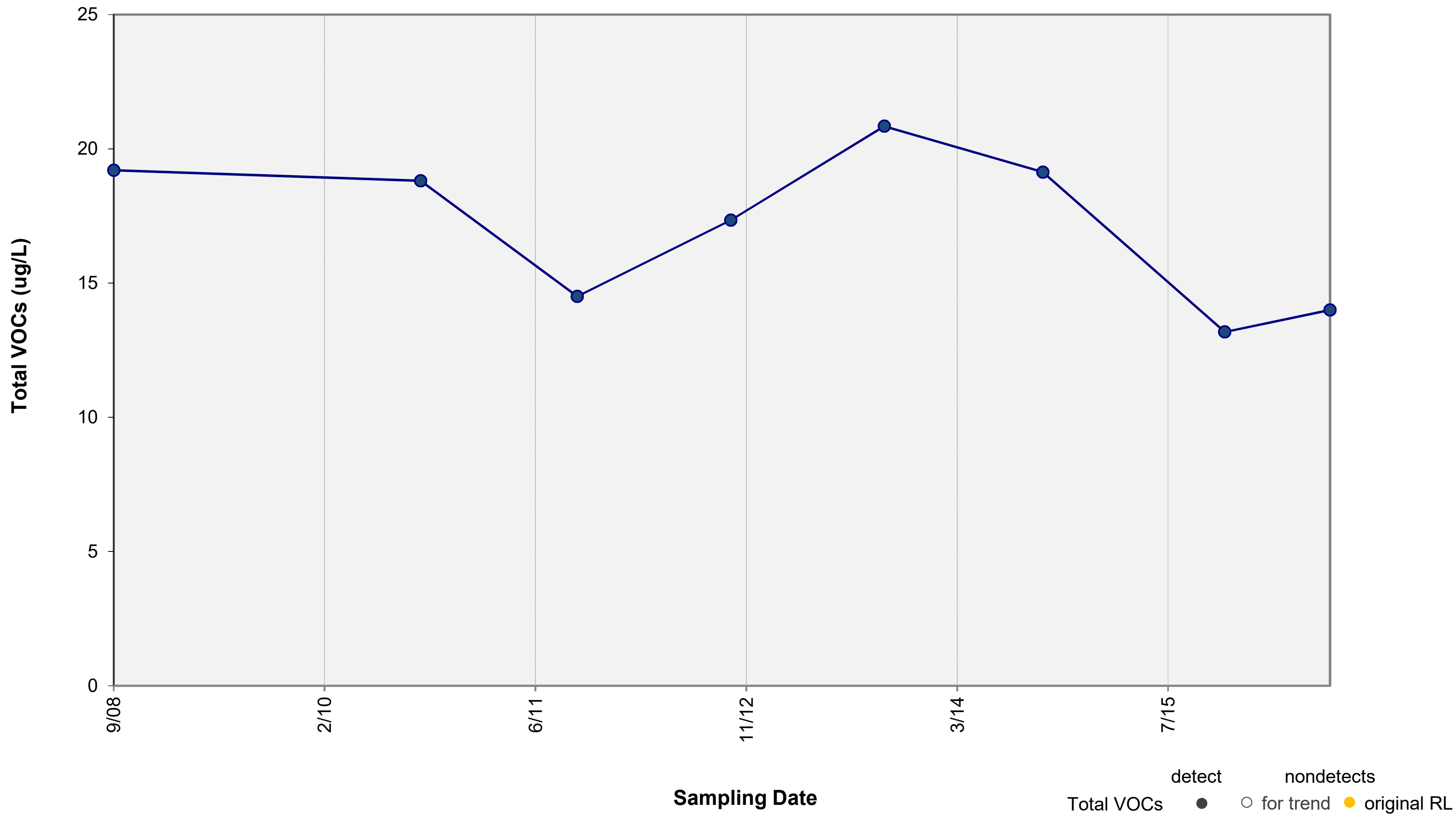
Results of Mann-Kendall Test for Trend:	**DECREASING TREND**			
	p value =	0.003	Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).	
Results of Sen's Estimator of Slope:	**DECREASING TREND**			
	Median Slope Estimate =	-2.6E-03	ug/L Per Day	
	95% Confidence Interval =	-3.0E-03	to	-1.1E-03 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure G-3



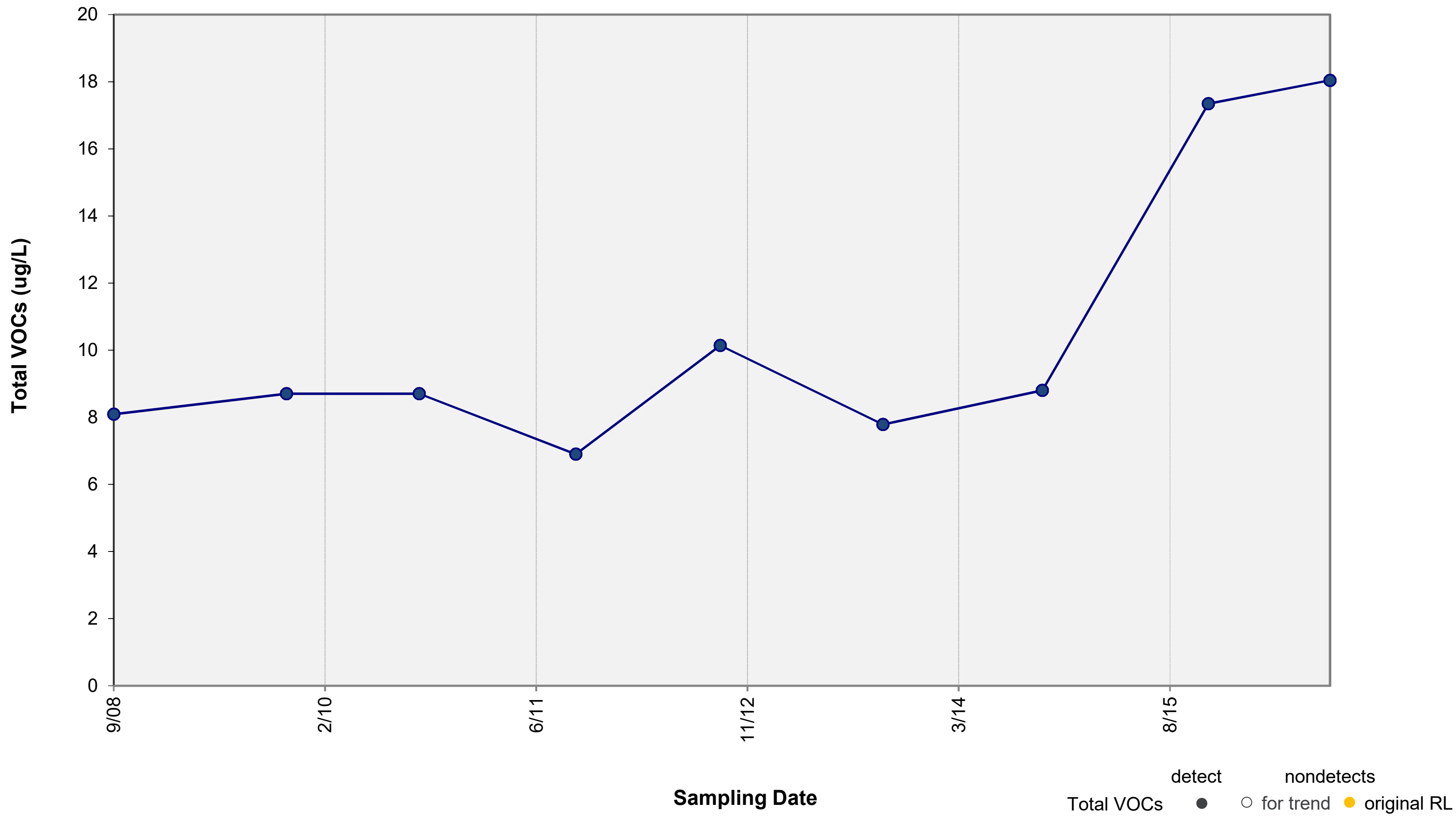
Results of Mann-Kendall Test for Trend: **No Significant Trend**
p value = 0.138 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**
Median Slope Estimate = -1.5E-03 ug/L Per Day
95% Confidence Interval = -4.5E-03 to 1.8E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-09 (after July 2008)
RACER Trust, Moraine, Ohio

Figure G-4



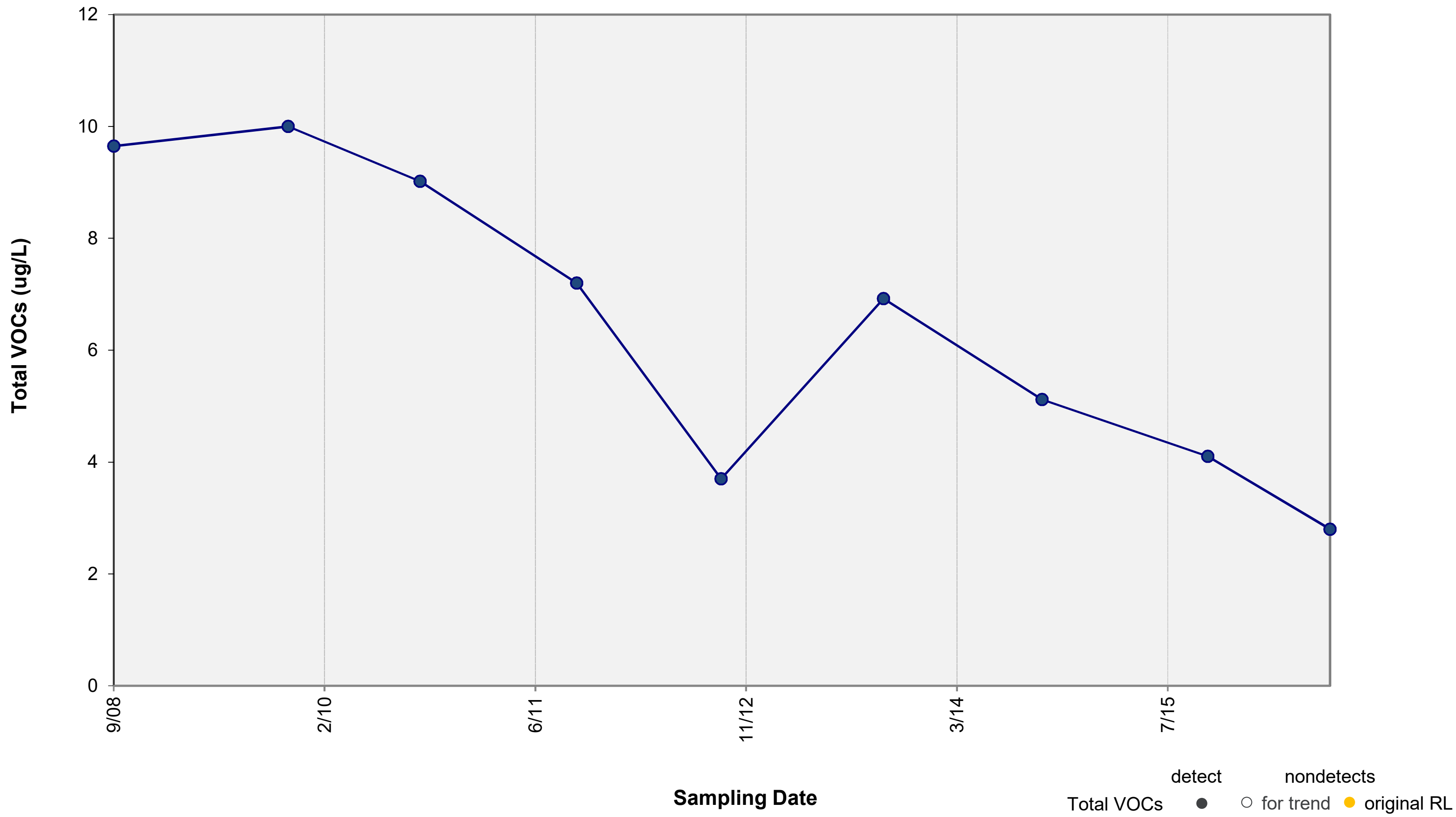
Results of Mann-Kendall Test for Trend: **INCREASING TREND**
p value = 0.030 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No Significant Trend**
Median Slope Estimate = 1.9E-03 ug/L Per Day
95% Confidence Interval = -5.7E-05 to 4.9E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-15 (after July 2008)
RACER Trust, Moraine, Ohio

Figure G-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 = -2.6E-03 ug/L Per Day
95% Confidence Interval = -4.0E-03 to -1.9E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Total VOCs in Well GM-20D (after July 2008)
RACER Trust, Moraine, Ohio

Figure G-6

APPENDIX H

Lagoon Statistics

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

ARCADIS Design & Consultancy for natural and built assets

Well ID	Up or Down Grad-ient	Analyte	Figure	Date Range	FOD	Detected Results Summary (µg/L)			MCL (µg/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	H-3	11/01 - 08/16	6 / 16	0.17 - 2	0.77	0.72	200	0.437	UP	0.002	55	NT	0.0000274
W-2-N	North	1,1,1-Trichloroethane	--	11/01 - 08/16	3 / 16	0.25 - 0.48	0.34	0.12	200	0.233	DWN	0.019	-32	NT	0
W-3-N	North	1,1,1-Trichloroethane	--	11/01 - 08/16	0 / 16	--	--	--	200	--	--	--	--	--	--
W-4-N	North	1,1,1-Trichloroethane	--	11/01 - 08/16	8 / 16	0.26 - 0.47	0.38	0.067	200	0.177	DWN	0.037	-38	NT	-0.00000420
HR-04	North	1,1-Dichloroethane	H-4	11/01 - 08/16	13 / 16	0.77 - 5.5	3	1.6	--	0.179	UP	0.017	48	NT	0.000350
W-2-N	North	1,1-Dichloroethane	--	11/01 - 08/16	6 / 16	0.22 - 0.36	0.3	0.048	--	0.523	DWN	<0.001	-61	NT	-0.0000139
W-3-N	North	1,1-Dichloroethane	--	11/01 - 08/16	0 / 16	--	--	--	--	--	--	--	--	--	--
W-4-N	North	1,1-Dichloroethane	H-5	11/01 - 08/16	16 / 16	0.89 - 7.1	2.8	2	--	**0.642**	UP	<0.001	84	UP	0.000711
HR-04	North	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
W-2-N	North	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
W-3-N	North	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
W-4-N	North	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
HR-04	North	Benzene	--	11/01 - 08/16	0 / 16	--	--	--	5	--	--	--	--	--	--
W-2-N	North	Benzene	--	11/01 - 08/16	0 / 16	--	--	--	5	--	--	--	--	--	--
W-3-N	North	Benzene	--	11/01 - 08/16	0 / 16	--	--	--	5	--	--	--	--	--	--
W-4-N	North	Benzene	--	11/01 - 08/16	0 / 16	--	--	--	5	--	--	--	--	--	--
HR-04	North	cis-1,2-Dichloroethene	--	11/01 - 08/16	7 / 16	0.23 - 0.42	0.3	0.066	70	0.283	NST	0.055	33	NT	0
W-2-N	North	cis-1,2-Dichloroethene	--	11/01 - 08/16	16 / 16	0.89 - 2.8	1.5	0.41	70	0.0523	NST	0.500	-1	NST	0
W-3-N	North	cis-1,2-Dichloroethene	--	11/01 - 08/16	16 / 16	22 - 160	81.3	45.8	70	0.869	DWN	<0.001	-106	DWN	-0.0254
W-4-N	North	cis-1,2-Dichloroethene	H-6	11/01 - 08/16	16 / 16	1.6 - 14	6.8	4	70	**0.543**	UP	0.001	69	UP	0.00153
HR-04	North	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
W-2-N	North	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
W-3-N	North	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
W-4-N	North	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
HR-04	North	Tetrachloroethene	--	11/01 - 08/16	12 / 16	0.21 - 1.3	0.51	0.3	5	0.524	DWN	<0.001	-86	DWN	-0.0000853
W-2-N	North	Tetrachloroethene	--	11/01 - 08/16	1 / 16	0.31 - 0.31	0.31	0	5	0.0649	NST	0.193	-9	NT	0
W-3-N	North	Tetrachloroethene	--	11/01 - 08/16	8 / 16	0.52 - 9	2.4	3	5	0.299	NST	0.088	-29	NT	-0.0000191
W-4-N	North	Tetrachloroethene	--	11/01 - 08/16	14 / 16	0.38 - 1.7	0.86	0.34	5	0.486	DWN	<0.001	-70	DWN	-0.000141
HR-04	North	Toluene	--	11/01 - 08/16	0 / 16	--	--	--	1000	--	--	--	--	--	--
W-2-N	North	Toluene	--	11/01 - 08/16	1 / 16	0.28 - 0.28	0.28	0	1000	0.00724	NST	0.414	-3	NT	0
W-3-N	North	Toluene	--	11/01 - 08/16	0 / 16	--	--	--	1000	--	--	--	--	--	--
W-4-N	North	Toluene	--	11/01 - 08/16	0 / 16	--	--	--	1000	--	--	--	--	--	--
HR-04	North	trans-1,2-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	100	--	--	--	--	--	--
W-2-N	North	trans-1,2-Dichloroethene	--	11/01 - 08/16	2 / 16	0.18 - 0.2	0.19	0.014	100	0.0846	NST	0.134	-15	NT	0
W-3-N	North	trans-1,2-Dichloroethene	--	11/01 - 08/16	15 / 16	0.34 - 2.2	1.1	0.57	100	0.472	DWN	<0.001	-77	DWN	-0.000282
W-4-N	North	trans-1,2-Dichloroethene	H-7	11/01 - 08/16	13 / 16	0.19 - 1.2	0.56	0.28	100	0.418	UP	0.001	68	UP	0.0000967
HR-04	North	Trichloroethene	--	11/01 - 08/16	14 / 16	0.27 - 1	0.43	0.22	5	0.521	DWN	0.006	-57	DWN	-0.0000411
W-2-N	North	Trichloroethene	--	11/01 - 08/16	11 / 16	0.2 - 1.6	0.89	0.5	5	0.188	DWN	0.041	-39	NT	-0.000215
W-3-N	North	Trichloroethene	--	11/01 - 08/16	2 / 16	1.7 - 2.1	1.9	0.28	5	0.219	DWN	0.020	-27	NT	0
W-4-N	North	Trichloroethene	--	11/01 - 08/16	16 / 16	6.3 - 15	9.5	2.4	5	0.0553	NST	0.150	24	NST	0.000414
HR-04	North	Vinyl chloride	--	11/01 - 08/16	0 / 16	--	--	--	2	--	--	--	--	--	--
W-2-N	North	Vinyl chloride	--	11/01 - 08/16	0 / 16	--	--	--	2	--	--	--	--	--	--
W-3-N	North	Vinyl chloride	--	11/01 - 08/16	16 / 16	1 - 9.6	4.3	2.8	2	0.756	DWN	<0.001	-86	DWN	-0.00137
W-4-N	North	Vinyl chloride	--	11/01 - 08/16	9 / 16	0.18 - 0.96	0.51	0.24	2	0.352	DWN	0.007	-53	NT	-0.0000777
HR-04	North	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--
W-2-N	North	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--
W-3-N	North	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--
W-4-N	North	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--

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

ARCADIS Design & Consultancy for natural and built assets

Well ID	Up or Down Gradient	Analyte	Figure	Date Range	FOD	Detected Results Summary (µg/L)			MCL (µg/L)	Linear Correlation R^2	Mann-Kendall Test			Sen's Estimator of Slope	
						Range	Mean	SD			Result	P-Value	S Value	Result	Slope (Units/Day)
HR-17	South	1,1,1-Trichloroethane	--	11/01 - 08/16	4 / 16	0.39 - 1.5	1.1	0.51	200	0.0170	NST	0.429	-4	NT	0
W-2-S	South	1,1,1-Trichloroethane	--	11/01 - 08/16	15 / 16	0.79 - 1.8	1.5	0.25	200	0.194	NST	0.144	-24	NST	-0.0000309
W-3-S	South	1,1,1-Trichloroethane	--	11/01 - 08/16	14 / 16	0.49 - 2.5	1.4	0.74	200	0.710	DWN	<0.001	-83	DWN	-0.000343
W-4-S	South	1,1,1-Trichloroethane	--	11/01 - 08/16	20 / 20	0.95 - 2.9	1.7	0.51	200	0.387	DWN	<0.001	-96	DWN	-0.000292
HR-17	South	1,1-Dichloroethane	--	11/01 - 08/16	12 / 16	0.6 - 2	1.2	0.55	--	0.00524	NST	0.358	-9	NST	-0.0000110
W-2-S	South	1,1-Dichloroethane	--	11/01 - 08/16	16 / 16	0.58 - 1.3	1	0.21	--	0.0266	NST	0.181	-21	NST	-0.0000386
W-3-S	South	1,1-Dichloroethane	H-8	11/01 - 08/16	7 / 16	0.21 - 1.2	0.61	0.4	--	0.300	UP	0.011	47	NT	0.0000121
W-4-S	South	1,1-Dichloroethane	H-9	11/01 - 08/16	20 / 20	0.87 - 2.3	1.5	0.34	--	**0.538**	UP	<0.001	103	UP	0.000159
HR-17	South	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
W-2-S	South	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
W-3-S	South	1,1-Dichloroethene	--	11/01 - 08/16	0 / 16	--	--	--	7	--	--	--	--	--	--
W-4-S	South	1,1-Dichloroethene	--	11/01 - 08/16	1 / 20	0.21 - 0.21	0.21	0	7	0.0000613	NST	0.431	3	NT	0
HR-17	South	Benzene	--	11/01 - 08/16	0 / 16	--	--	--	5	--	--	--	--	--	--
W-2-S	South	Benzene	--	11/01 - 08/16	1 / 16	0.43 - 0.43	0.43	0	5	0.00119	NST	0.500	1	NT	0
W-3-S	South	Benzene	--	11/01 - 08/16	0 / 16	--	--	--	5	--	--	--	--	--	--
W-4-S	South	Benzene	--	11/01 - 08/16	0 / 20	--	--	--	5	--	--	--	--	--	--
HR-17	South	cis-1,2-Dichloroethene	--	11/01 - 08/16	13 / 16	1.4 - 7.1	3	1.7	70	0.259	DWN	0.023	-45	NT	-0.000348
W-2-S	South	cis-1,2-Dichloroethene	H-10	11/01 - 08/16	15 / 16	0.49 - 1.9	1	0.35	70	0.359	UP	0.013	50	NT	0.000113
W-3-S	South	cis-1,2-Dichloroethene	H-11	11/01 - 08/16	9 / 16	0.33 - 2.6	1.3	0.88	70	**0.678**	UP	<0.001	77	UP	0.000278
W-4-S	South	cis-1,2-Dichloroethene	H-12	11/01 - 08/16	20 / 20	3.3 - 12	6.3	2.5	70	**0.716**	UP	<0.001	148	UP	0.00140
HR-17	South	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
W-2-S	South	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
W-3-S	South	Ethylbenzene	--	11/01 - 08/16	0 / 16	--	--	--	700	--	--	--	--	--	--
W-4-S	South	Ethylbenzene	--	11/01 - 08/16	0 / 20	--	--	--	700	--	--	--	--	--	--
HR-17	South	Tetrachloroethene	H-13	11/01 - 08/16	16 / 16	3.3 - 170	91	54.3	5	**0.807**	UP	<0.001	90	UP	0.0290
W-2-S	South	Tetrachloroethene	--	11/01 - 08/16	10 / 16	0.31 - 0.55	0.37	0.071	5	0.00358	NST	0.075	32	NT	0.00000730
W-3-S	South	Tetrachloroethene	H-14	11/01 - 08/16	16 / 16	0.44 - 65	12.9	22.4	5	**0.573**	UP	<0.001	90	UP	0.00189
W-4-S	South	Tetrachloroethene	H-15	11/01 - 08/16	20 / 20	13 - 74	32.1	17.4	5	**0.742**	UP	<0.001	139	UP	0.00855
HR-17	South	Toluene	--	11/01 - 08/16	0 / 16	--	--	--	1000	--	--	--	--	--	--
W-2-S	South	Toluene	--	11/01 - 08/16	1 / 16	0.25 - 0.25	0.25	0	1000	0.0958	NST	0.139	-11	NT	0
W-3-S	South	Toluene	--	11/01 - 08/16	0 / 16	--	--	--	1000	--	--	--	--	--	--
W-4-S	South	Toluene	--	11/01 - 08/16	1 / 20	0.25 - 0.25	0.25	0	1000	0.0793	NST	0.112	-15	NT	0
HR-17	South	trans-1,2-Dichloroethene	--	11/01 - 08/16	11 / 16	0.46 - 1.6	0.96	0.37	100	0.0911	NST	0.126	-26	NST	-0.0000422
W-2-S	South	trans-1,2-Dichloroethene	H-16	11/01 - 08/16	3 / 16	0.3 - 0.47	0.37	0.089	100	0.236	UP	0.007	38	NT	0
W-3-S	South	trans-1,2-Dichloroethene	H-17	11/01 - 08/16	5 / 16	0.19 - 0.59	0.43	0.18	100	0.309	UP	0.005	48	NT	0
W-4-S	South	trans-1,2-Dichloroethene	H-18	11/01 - 08/16	20 / 20	0.43 - 1.5	1.1	0.29	100	0.407	UP	0.003	86	UP	0.000140
HR-17	South	Trichloroethene	H-19	11/01 - 08/16	15 / 16	4.2 - 160	46.4	53.7	5	0.447	UP	0.002	64	UP	0.0176
W-2-S	South	Trichloroethene	H-20	11/01 - 08/16	16 / 16	4.9 - 23	6.8	4.4	5	0.197	UP	0.014	50	UP	0.000321
W-3-S	South	Trichloroethene	H-21	11/01 - 08/16	16 / 16	1.5 - 97	12.3	24.3	5	0.310	UP	<0.001	72	UP	0.00131
W-4-S	South	Trichloroethene	H-22	11/01 - 08/16	20 / 20	8.9 - 72	23.6	18.5	5	**0.691**	UP	<0.001	146	UP	0.00498
HR-17	South	Vinyl chloride	--	11/01 - 08/16	0 / 16	--	--	--	2	--	--	--	--	--	--
W-2-S	South	Vinyl chloride	--	11/01 - 08/16	0 / 16	--	--	--	2	--	--	--	--	--	--
W-3-S	South	Vinyl chloride	--	11/01 - 08/16	0 / 16	--	--	--	2	--	--	--	--	--	--
W-4-S	South	Vinyl chloride	--	11/01 - 08/16	0 / 20	--	--	--	2	--	--	--	--	--	--
HR-17	South	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--
W-2-S	South	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--
W-3-S	South	Xylene (total)	--	11/01 - 08/16	0 / 16	--	--	--	10000	--	--	--	--	--	--
W-4-S	South	Xylene (total)	--	11/01 - 08/16	0 / 20	--	--	--	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 µg/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 H-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	--	▲	↔	--	▼	↔	--	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	▼	▼	--	↔	↔	--	↔	↔	--	▼	▼
Toluene	--	ND	ND	--	↔	↔	--	ND	ND	--	ND	ND
trans-1,2-Dichloroethene	--	ND	ND	--	↔	↔	--	▼	▼	--	▲	▲
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	--	↔	↔	--	▲	↔	--	▲	↔	--	▲	▲
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

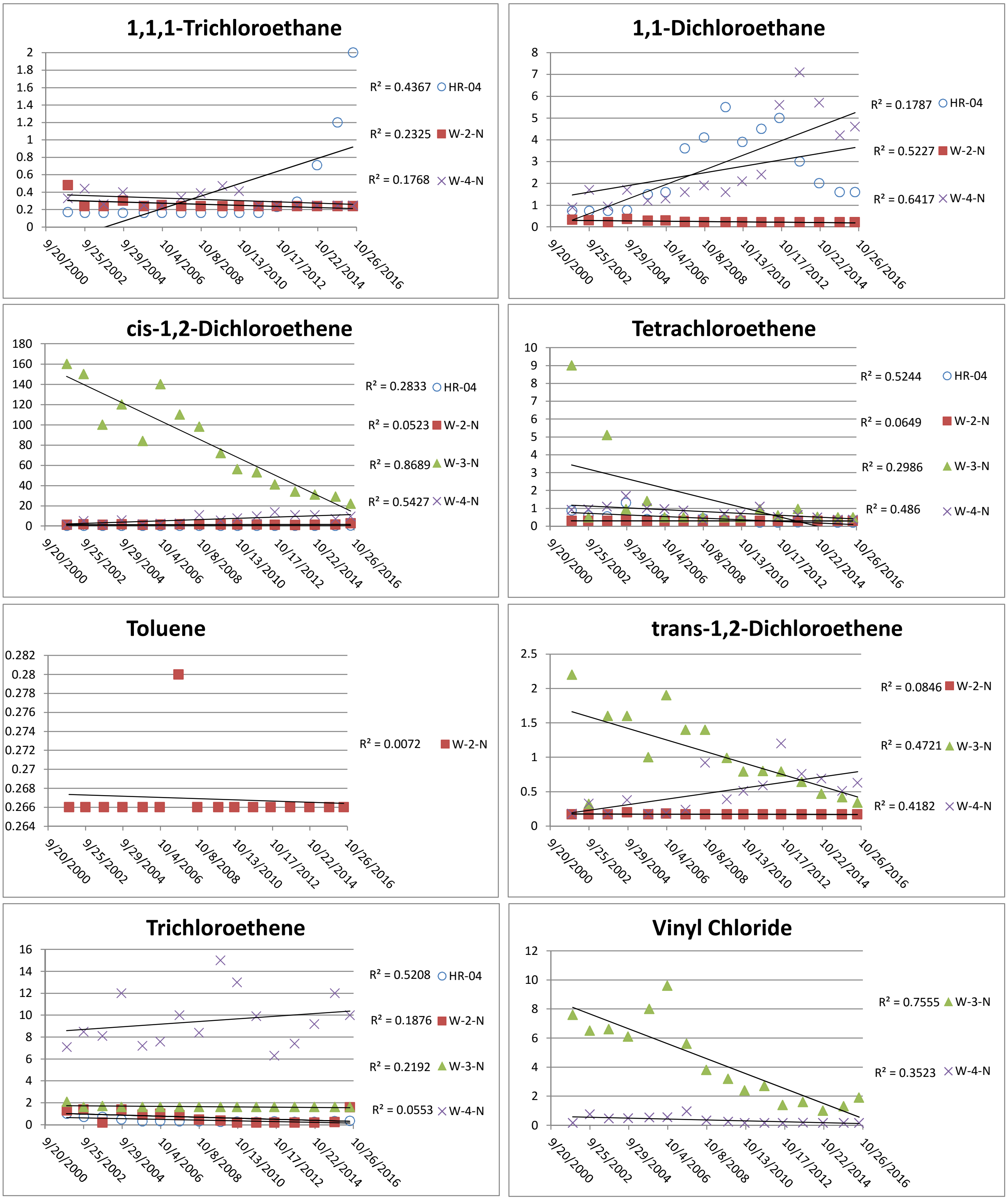
▲ = Decreasing trend (alpha = 0.05)

▼ = Increasing trend (alpha = 0.05)

ND = 100% Non-detect

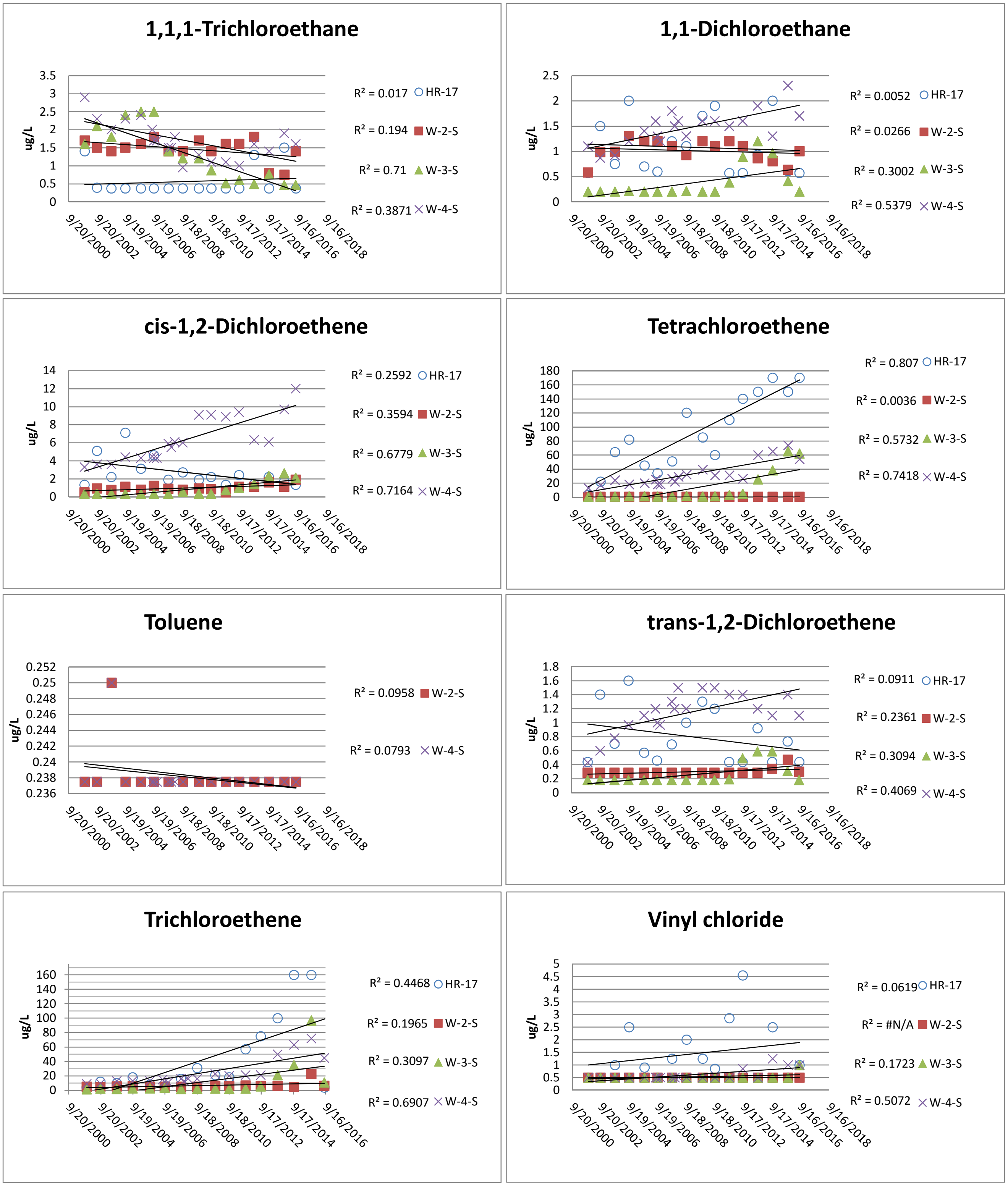
↔ = No trend

Figure H-1:
North 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, or total xylenes.

Figure H-2
South Settling Lagoon



Notes:

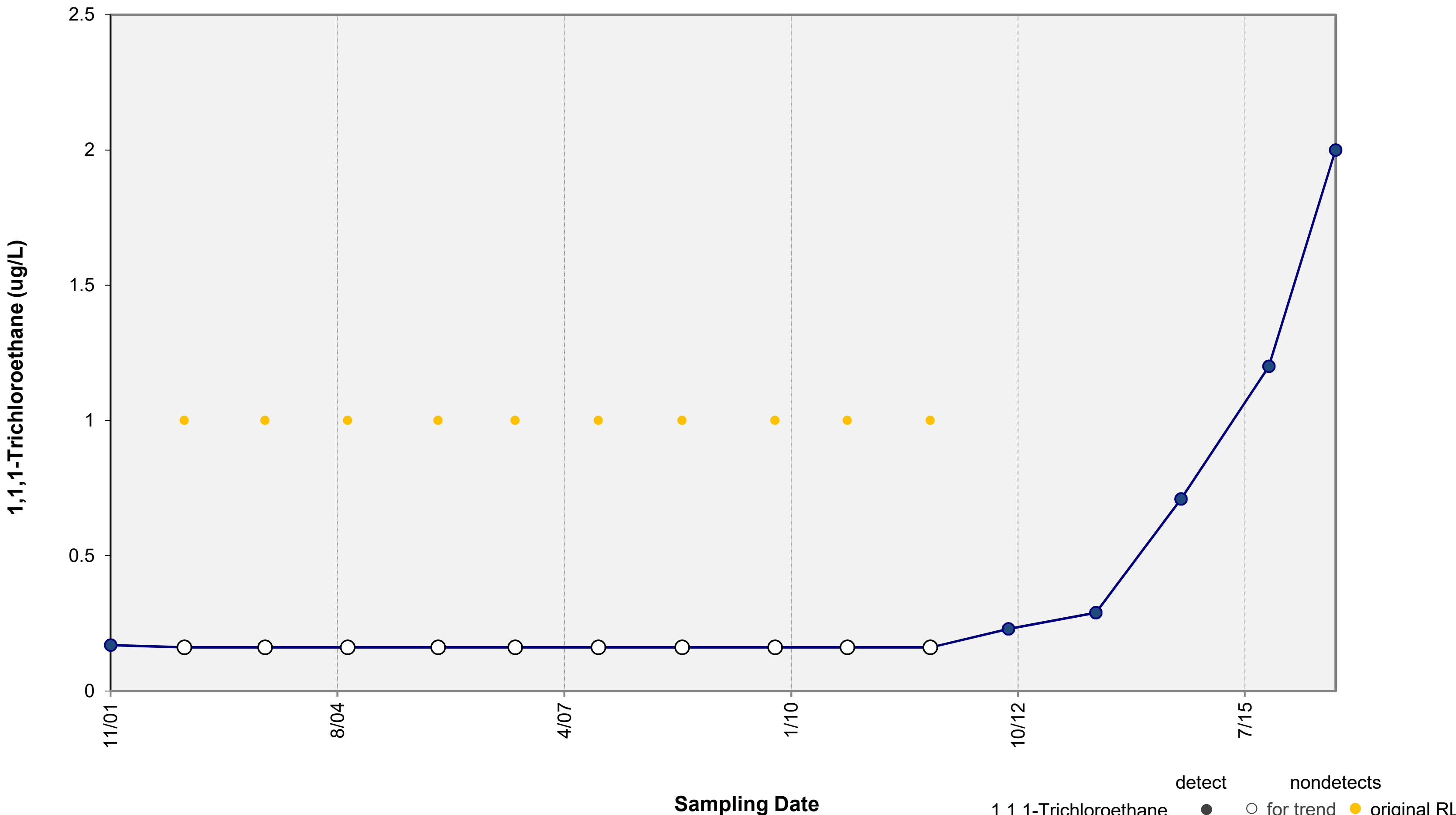
All results are in micrograms per liter.

Only datasets with at least one detected value are shown.

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

NA = not available

ND = not detected



MCL criteria value of 200 is off-scale.

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 = 2.7E-05 ug/L Per Day

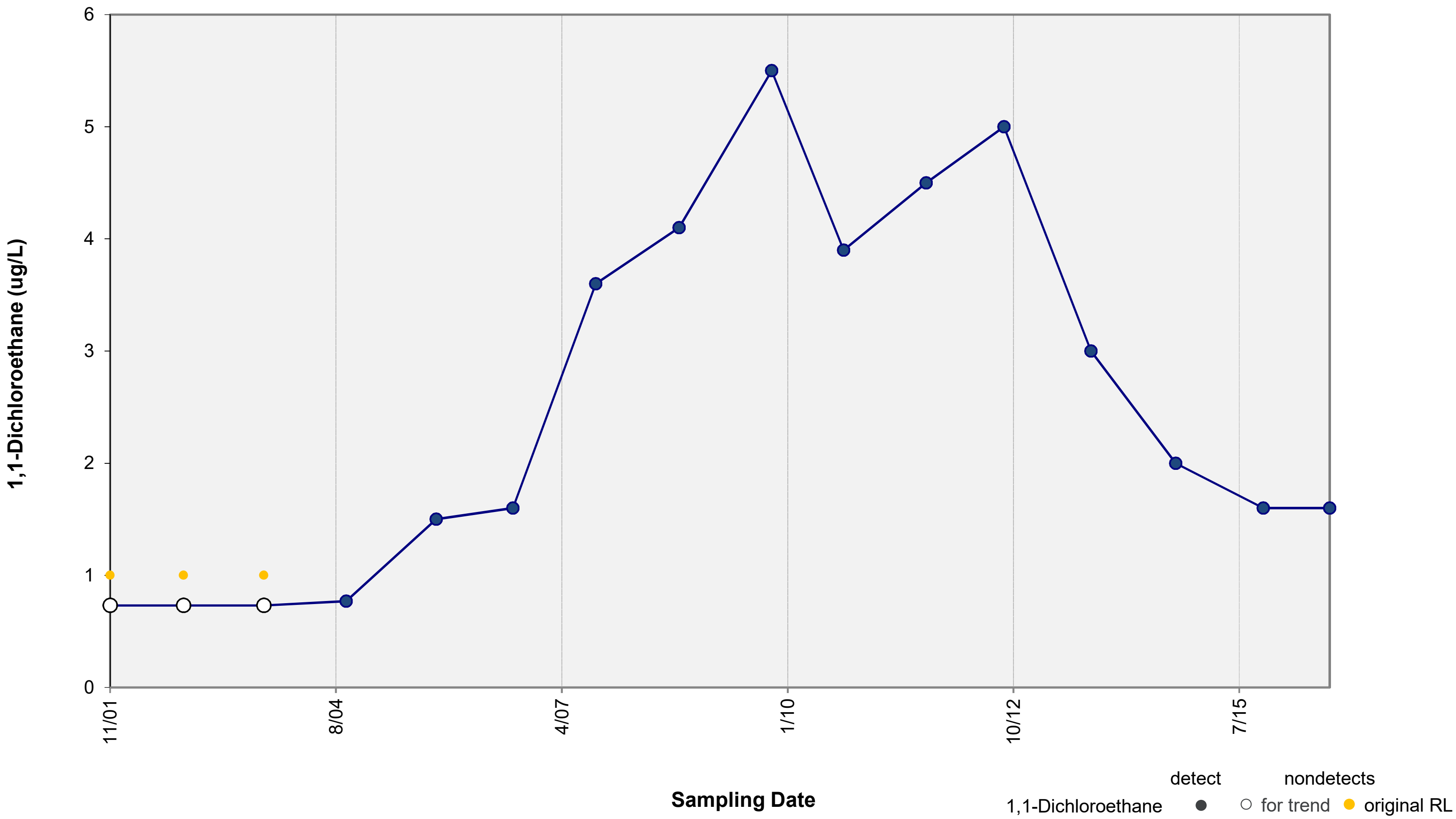
95% Confidence Interval = 0.0E+00 to 1.5E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-3



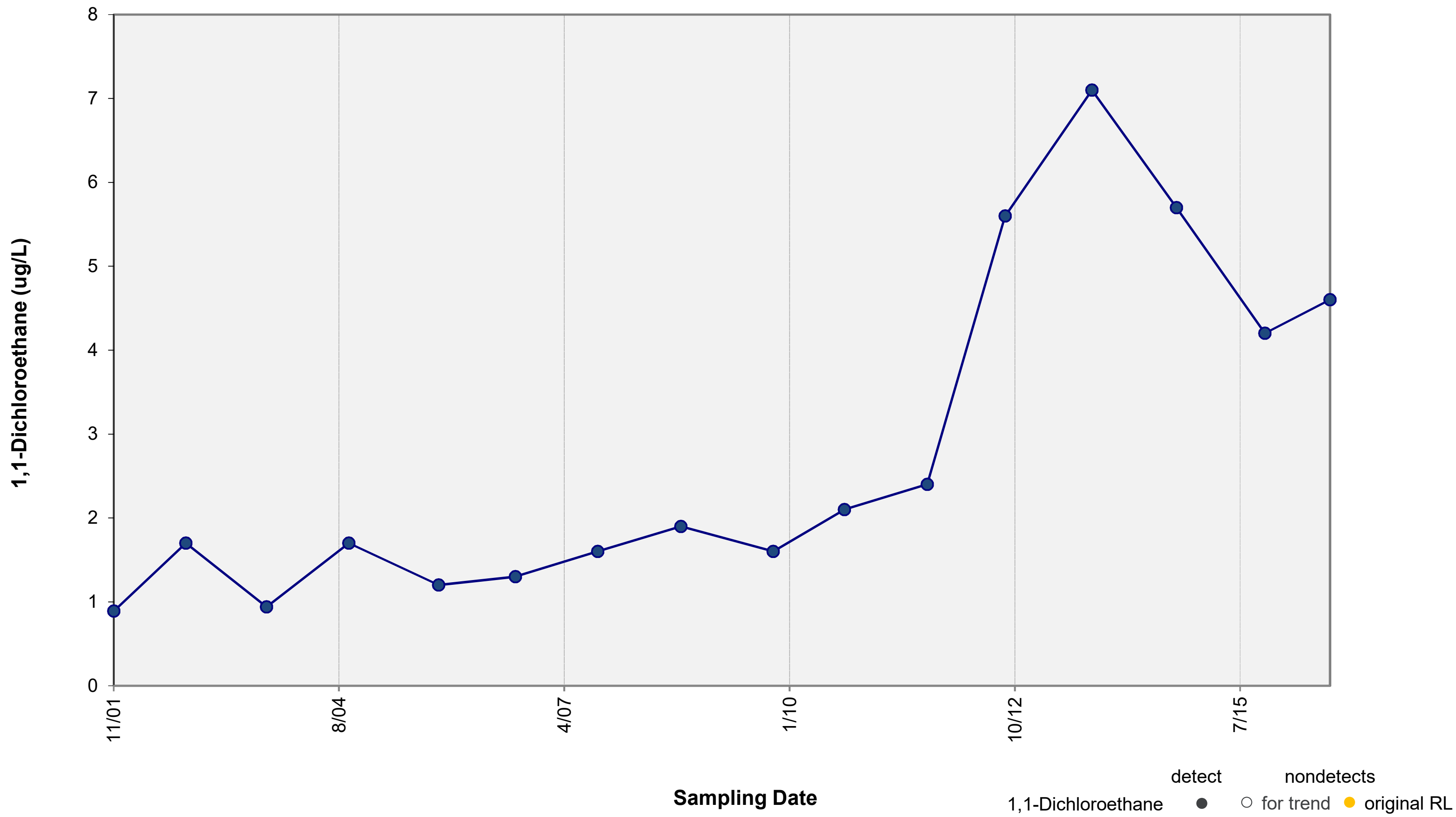
Results of Mann-Kendall Test for Trend:	**INCREASING TREND**			
	p value =	0.017	Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).	
Results of Sen's Estimator of Slope:	**No trend**			
	Median Slope Estimate =	3.5E-04	ug/L Per Day	
	95% Confidence Interval =	0.0E+00	to 1.1E-03	ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-4



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 = 7.1E-04 ug/L Per Day

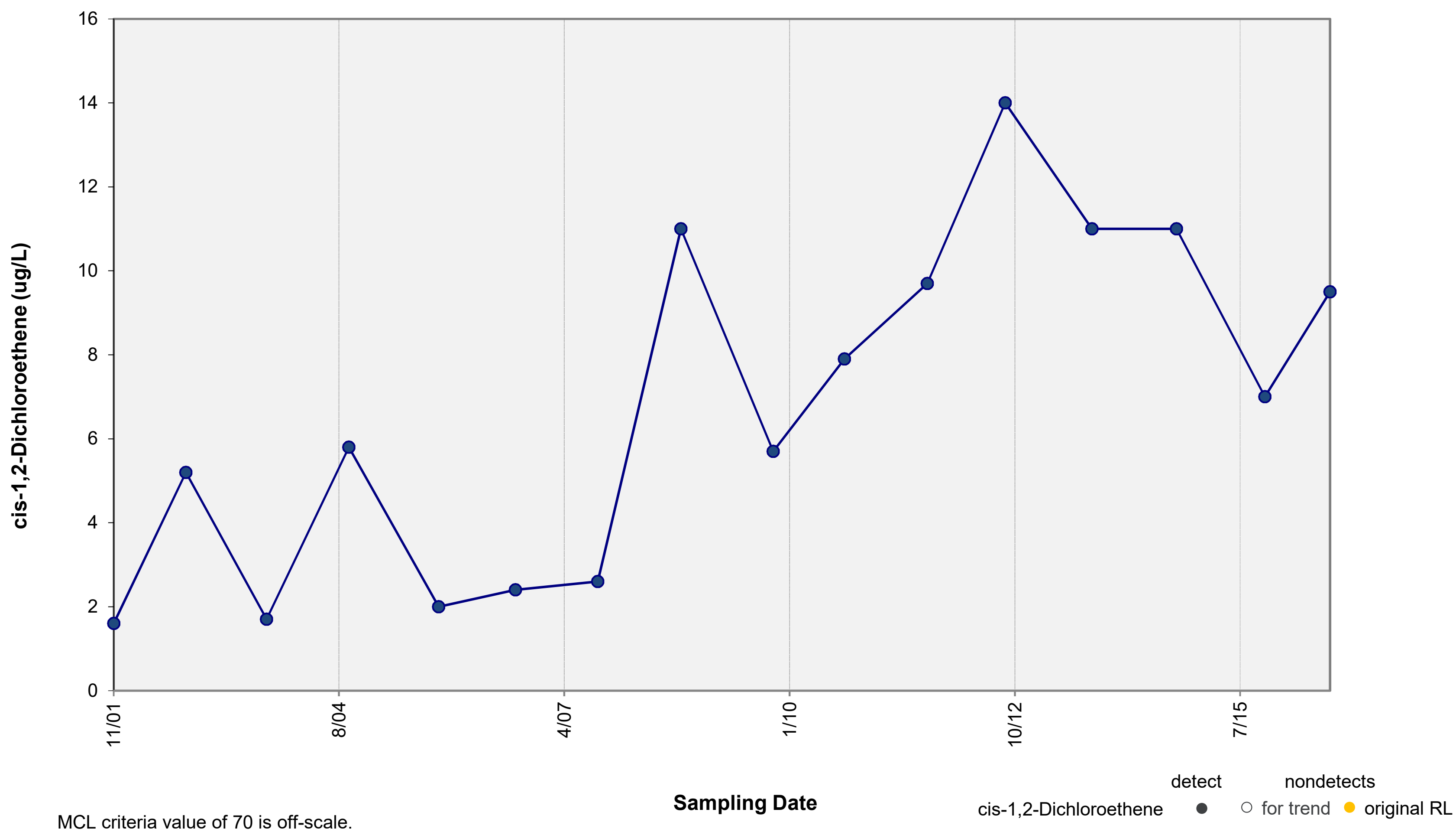
95% Confidence Interval = 3.5E-04 to 1.2E-03 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-5



MCL criteria value of 70 is off-scale.

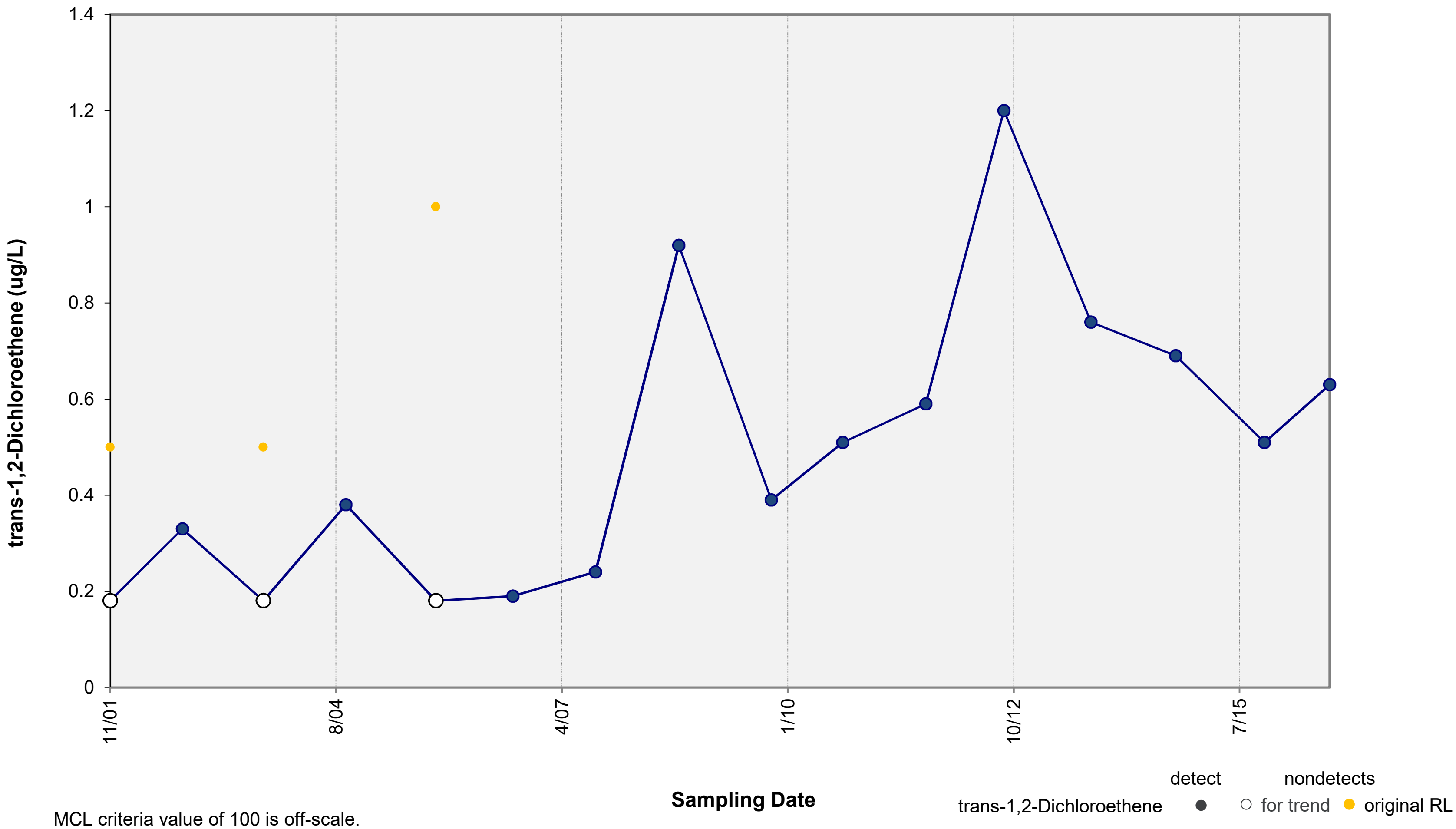
Results of Mann-Kendall Test for Trend: **INCREASING TREND**
p value = 0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**
Median Slope Estimate = 1.5E-03 ug/L Per Day
95% Confidence Interval = 6.2E-04 to 2.7E-03 ug/L Per Day

ARCADIS

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

Figure H-6



MCL criteria value of 100 is off-scale.

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 = 9.7E-05 ug/L Per Day

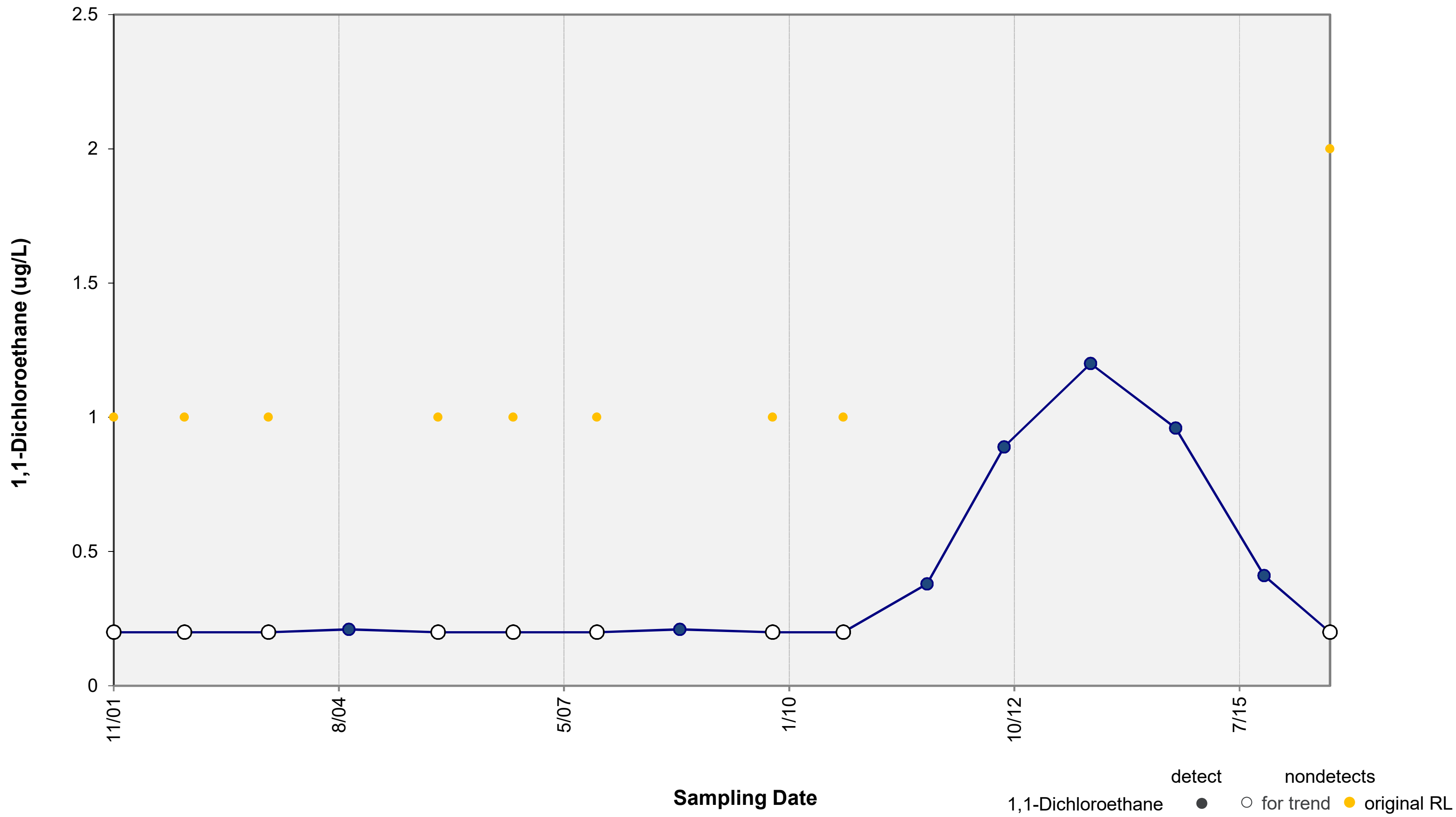
95% Confidence Interval = 4.5E-05 to 1.8E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-7



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

p value = 0.011 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 = 1.2E-05 ug/L Per Day

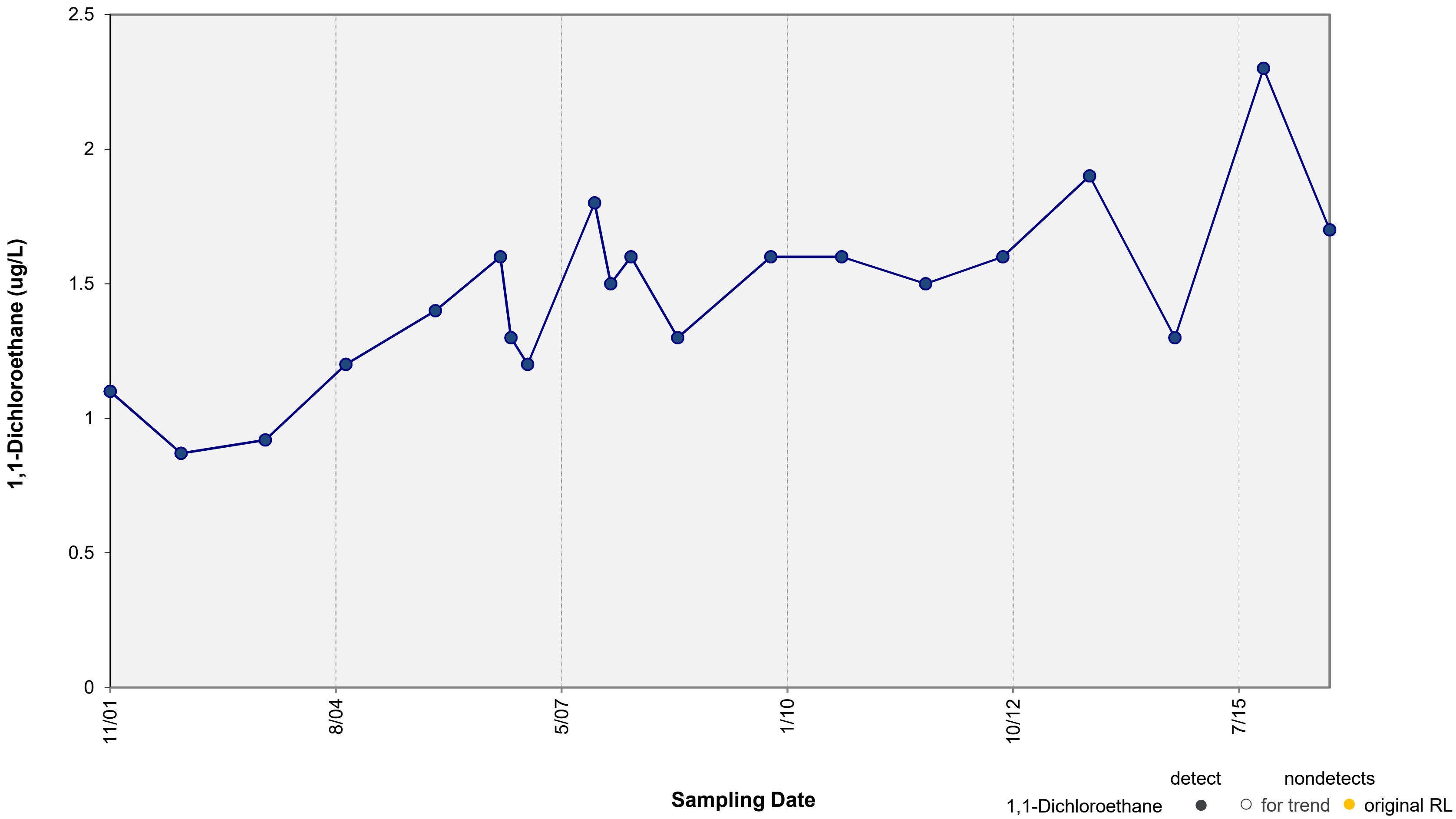
95% Confidence Interval = 0.0E+00 to 9.5E-05 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-8



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-04 ug/L Per Day

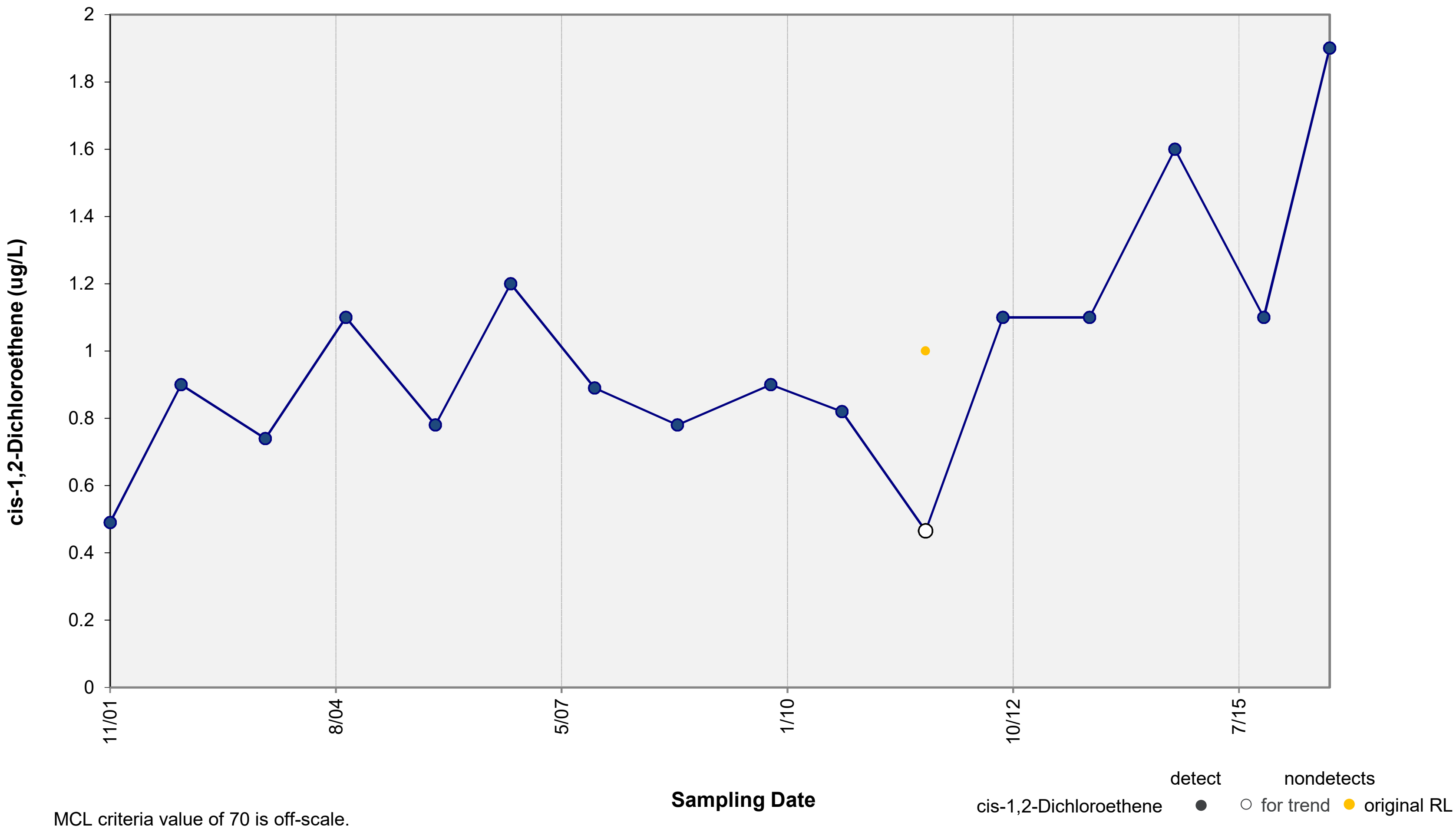
95% Confidence Interval = 7.0E-05 to 2.3E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-9



MCL criteria value of 70 is off-scale.

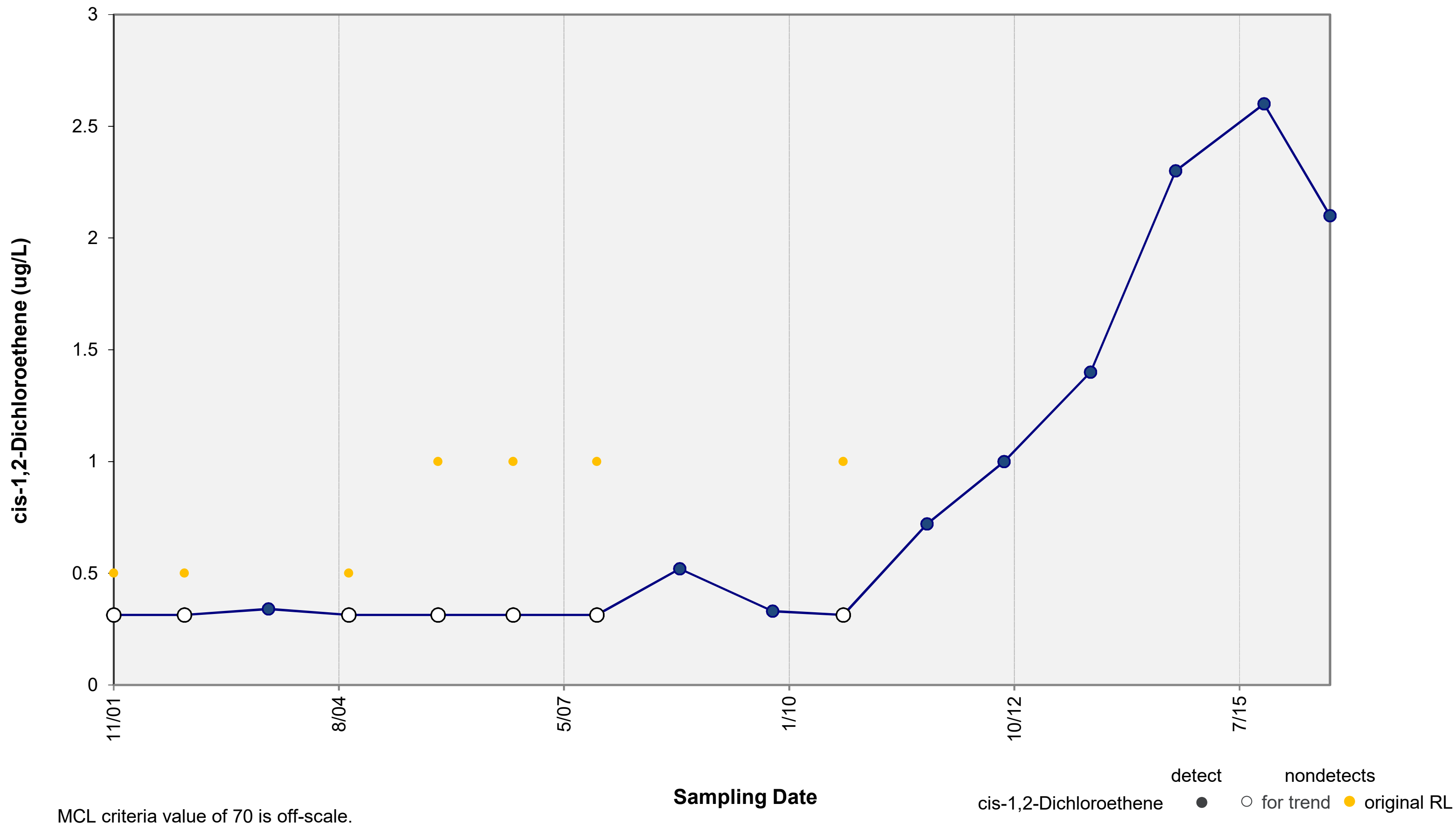
Results of Mann-Kendall Test for Trend: **INCREASING TREND**
p value = 0.013 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **No trend**
Median Slope Estimate = 1.1E-04 ug/L Per Day
95% Confidence Interval = 0.0E+00 to 2.0E-04 ug/L Per Day

ARCADIS

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

Figure H-10



MCL criteria value of 70 is off-scale.

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

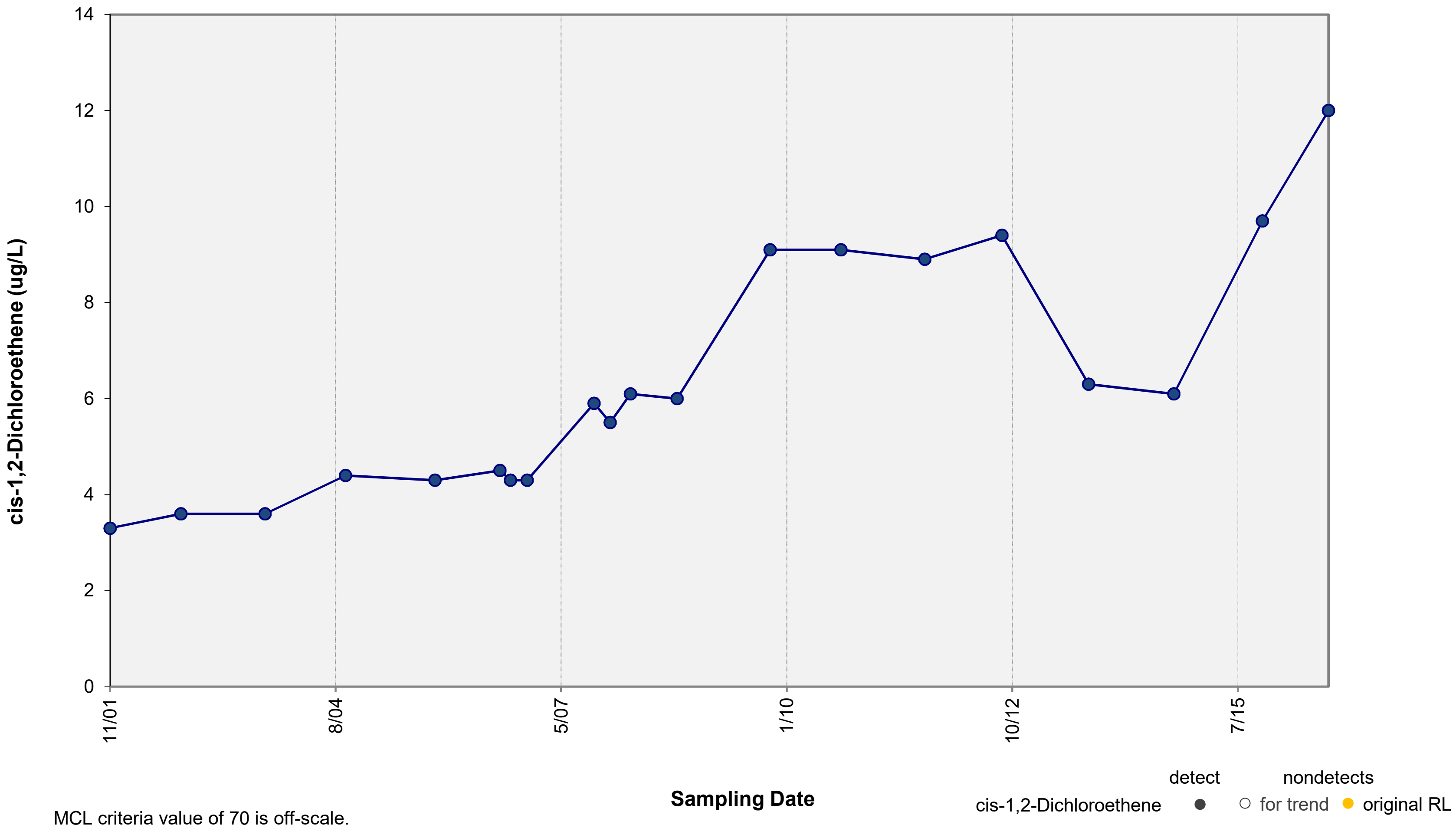
95% Confidence Interval = 4.6E-05 to 4.9E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-11



MCL criteria value of 70 is off-scale.

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 = 1.4E-03 ug/L Per Day

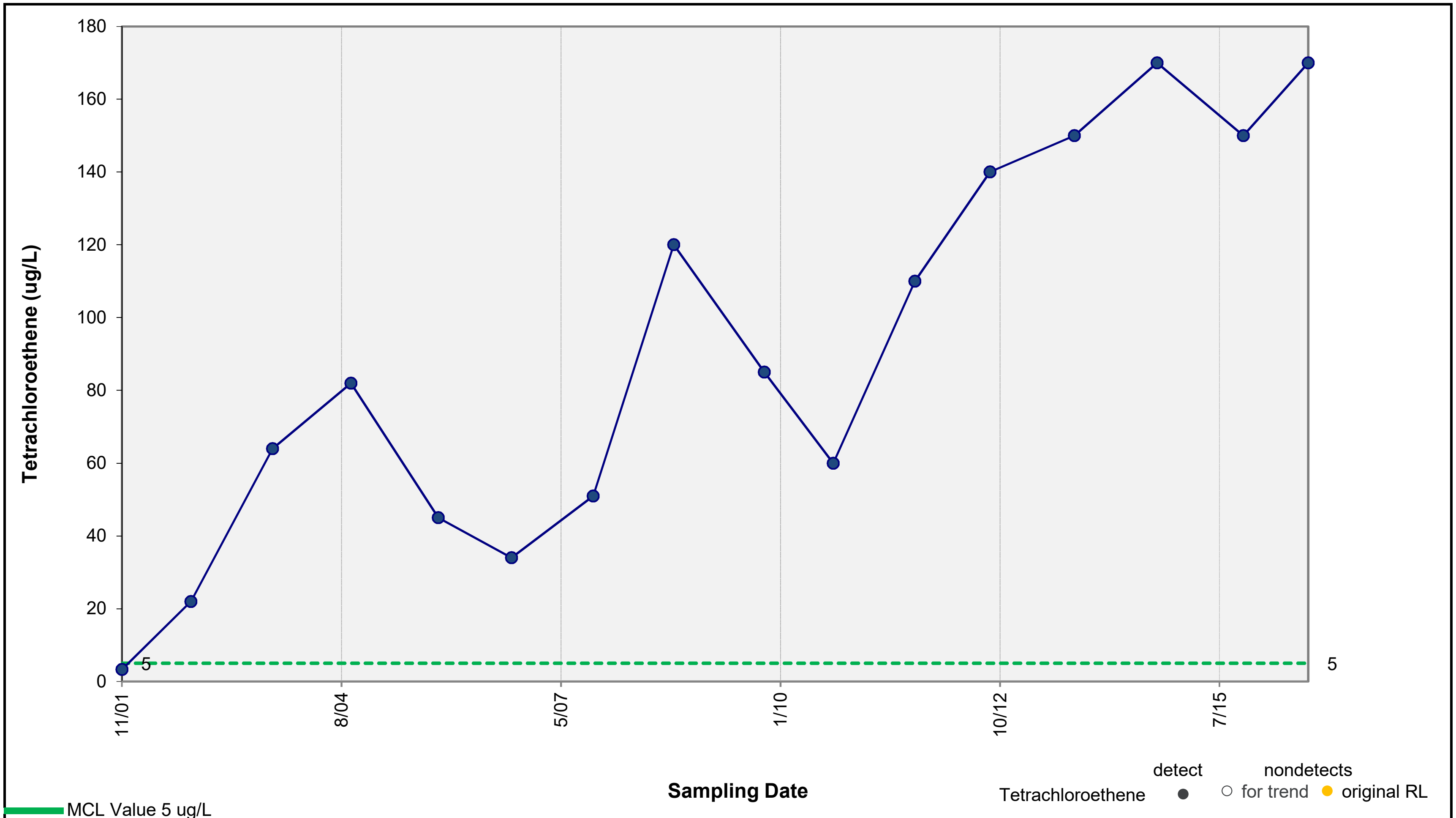
95% Confidence Interval = 7.3E-04 to 1.9E-03 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-12



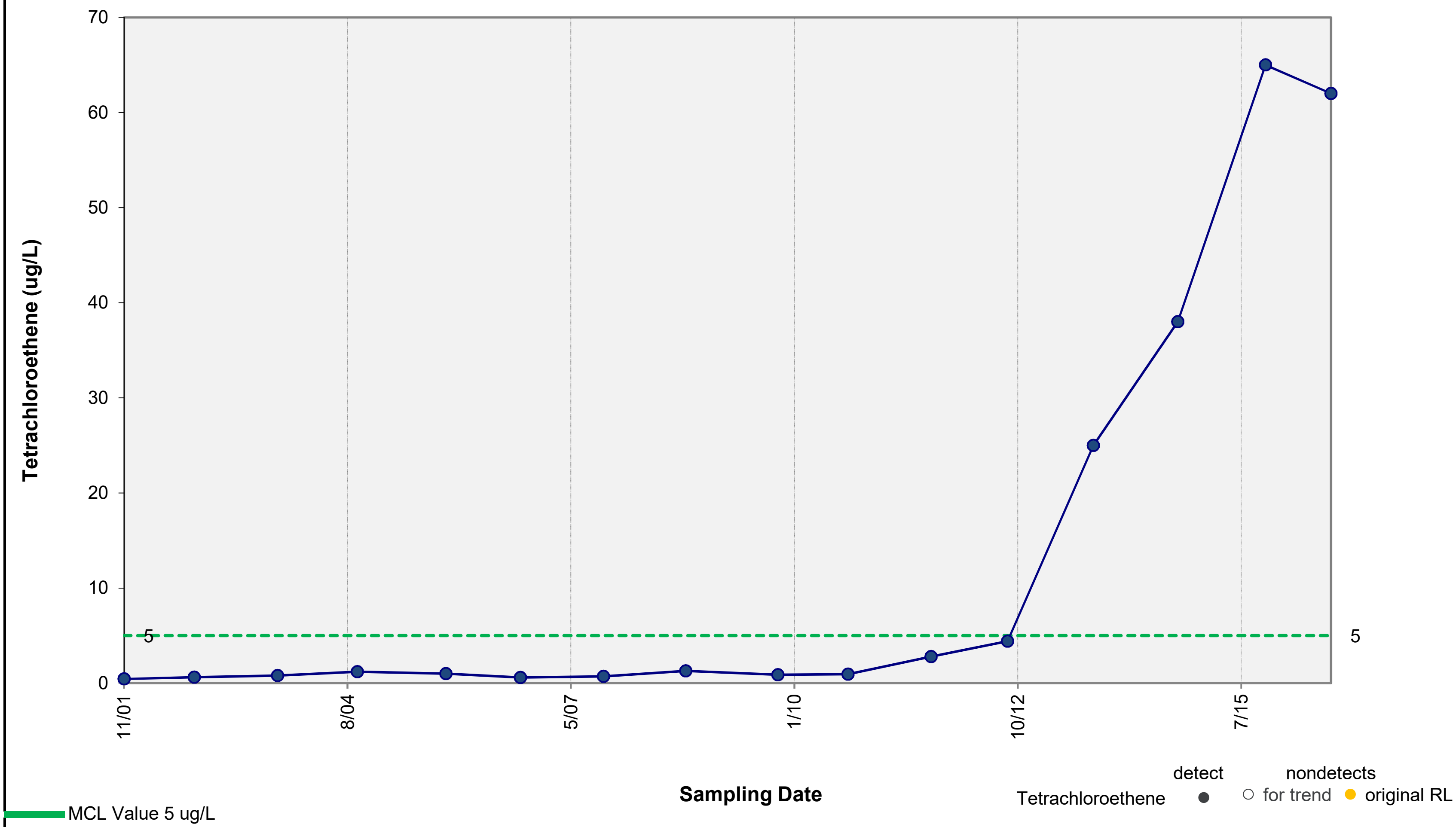
Results of Mann-Kendall Test for Trend: **INCREASING TREND**
p value = <0.001 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**
Median Slope Estimate = 2.9E-02 ug/L Per Day
95% Confidence Interval = 2.0E-02 to 3.8E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Tetrachloroethene in Well HR-17
RACER Trust, Moraine, Ohio

Figure H-13



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-03 ug/L Per Day

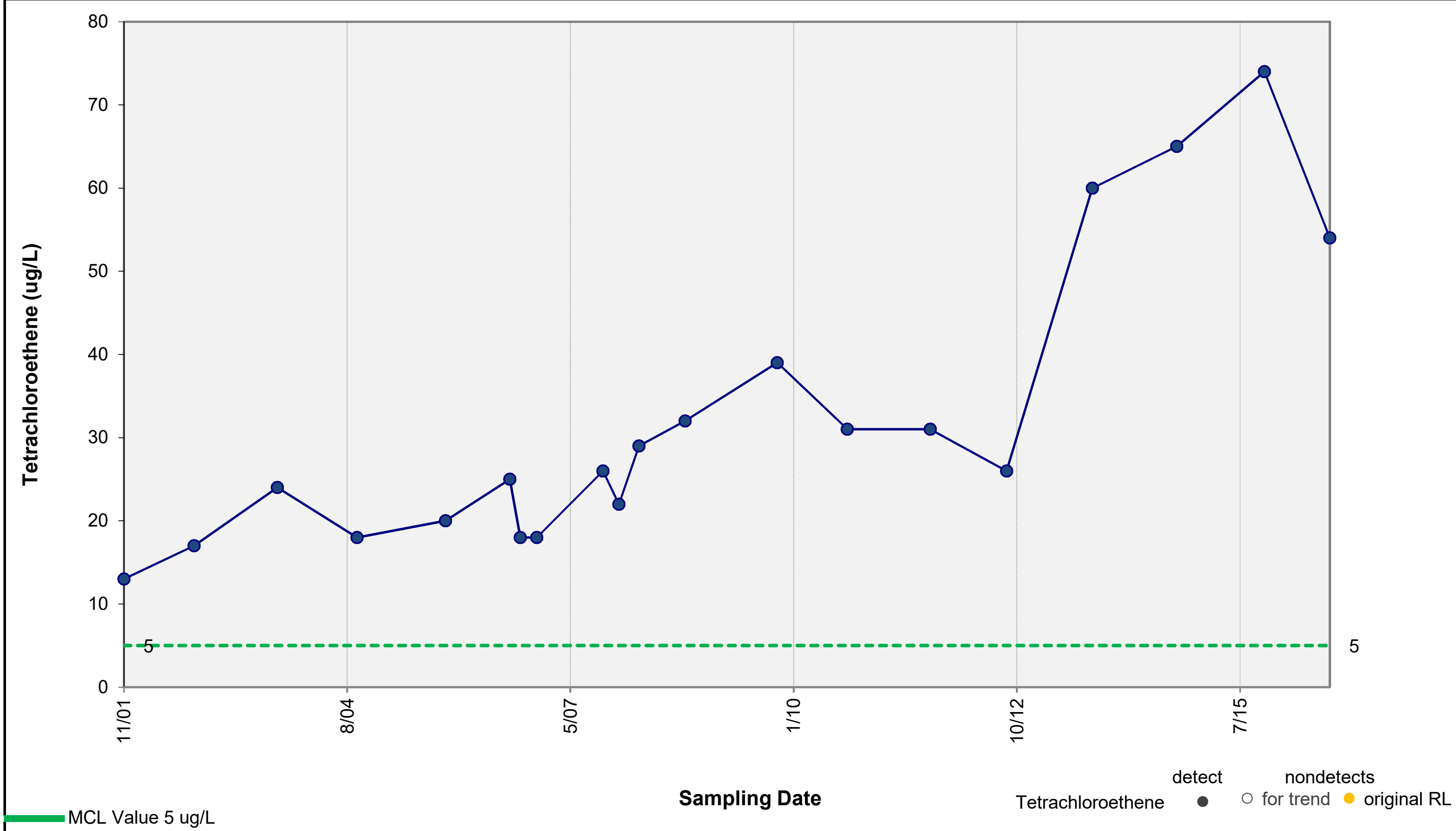
95% Confidence Interval = 4.2E-04 to 1.3E-02 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-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 = 8.5E-03 ug/L Per Day

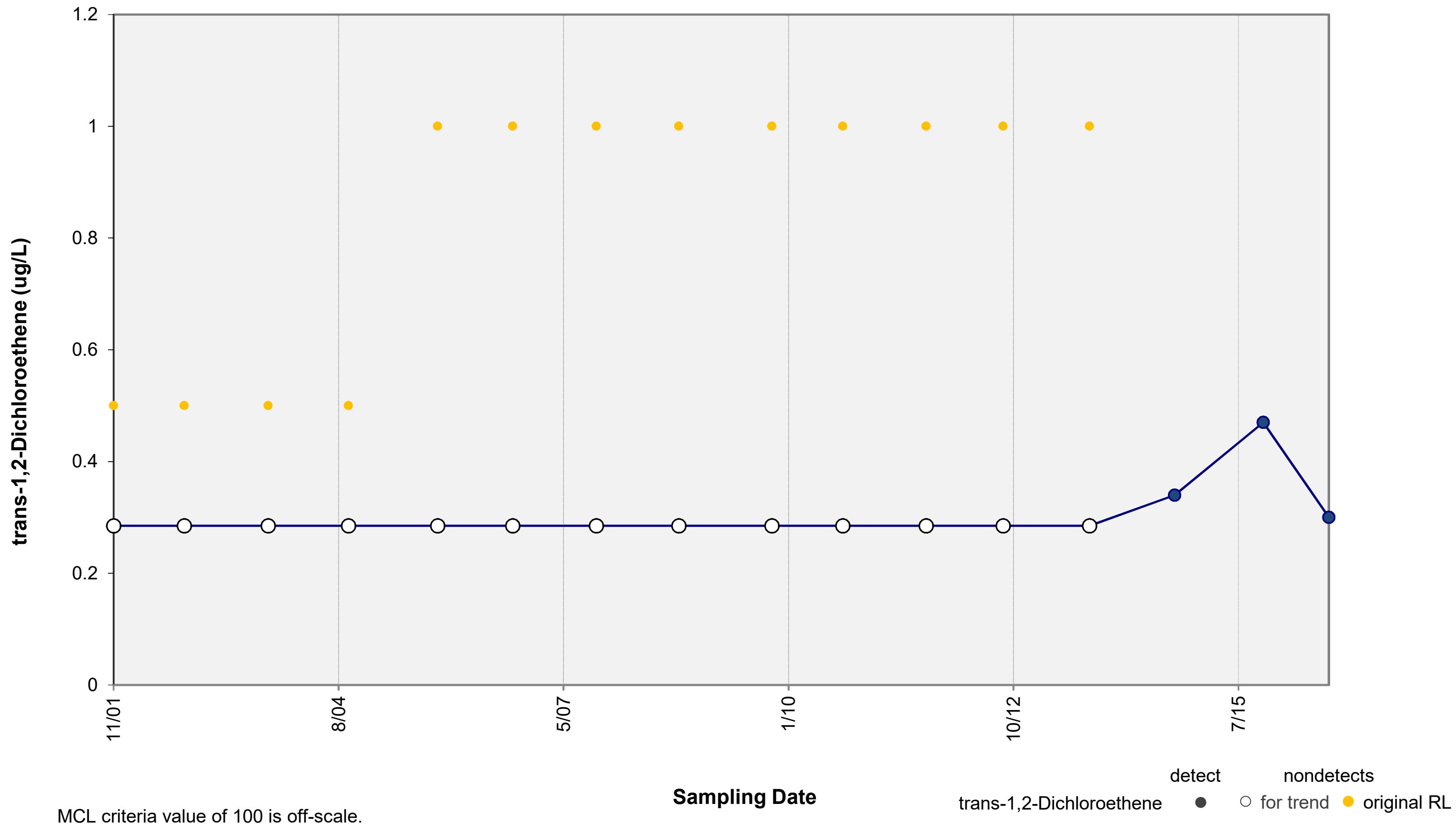
95% Confidence Interval = 4.9E-03 to 1.3E-02 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-15



MCL criteria value of 100 is off-scale.

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

p value = 0.007 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

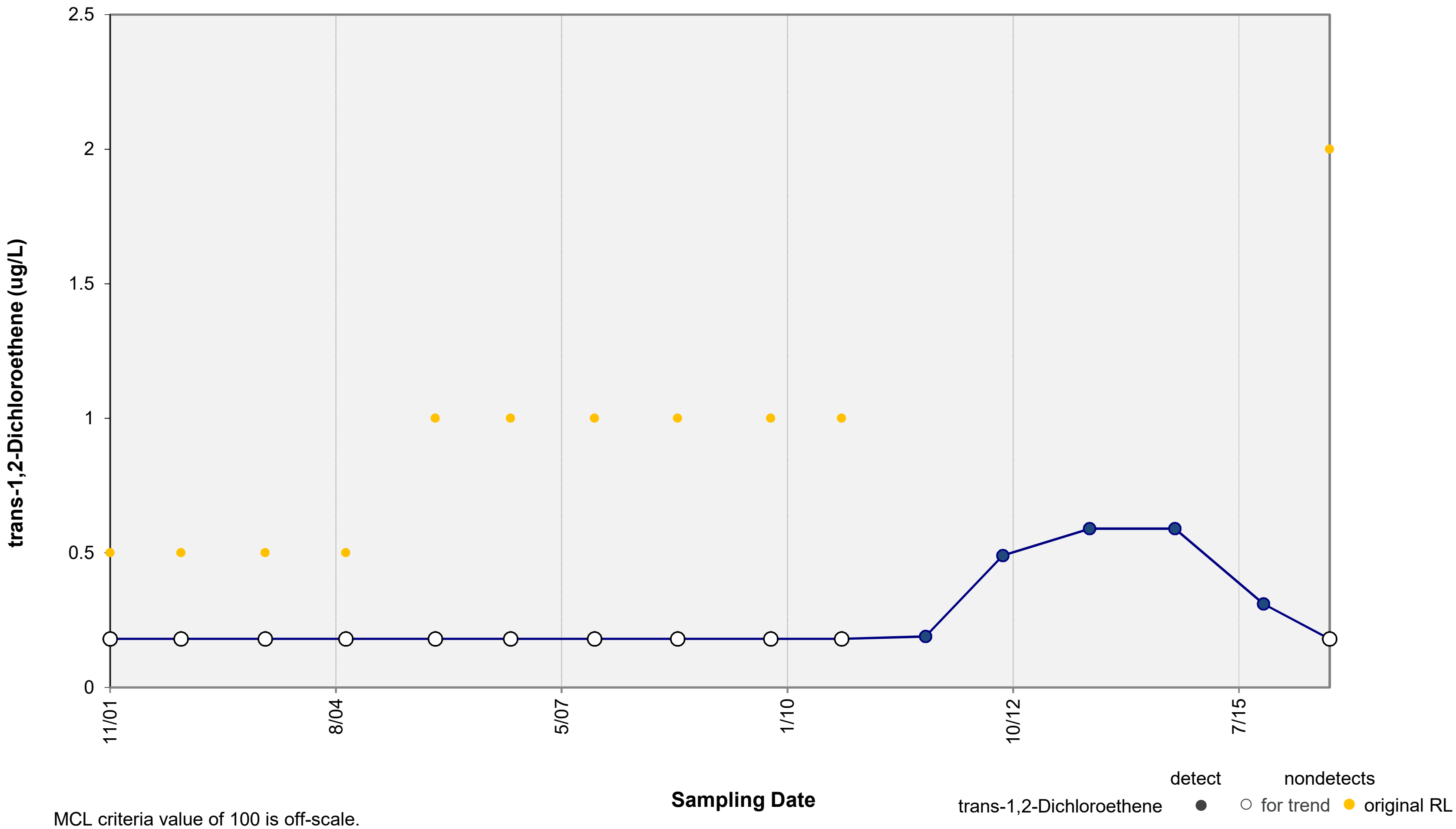
95% Confidence Interval = 0.0E+00 to 0.0E+00 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-16



MCL criteria value of 100 is off-scale.

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

p value = 0.005 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

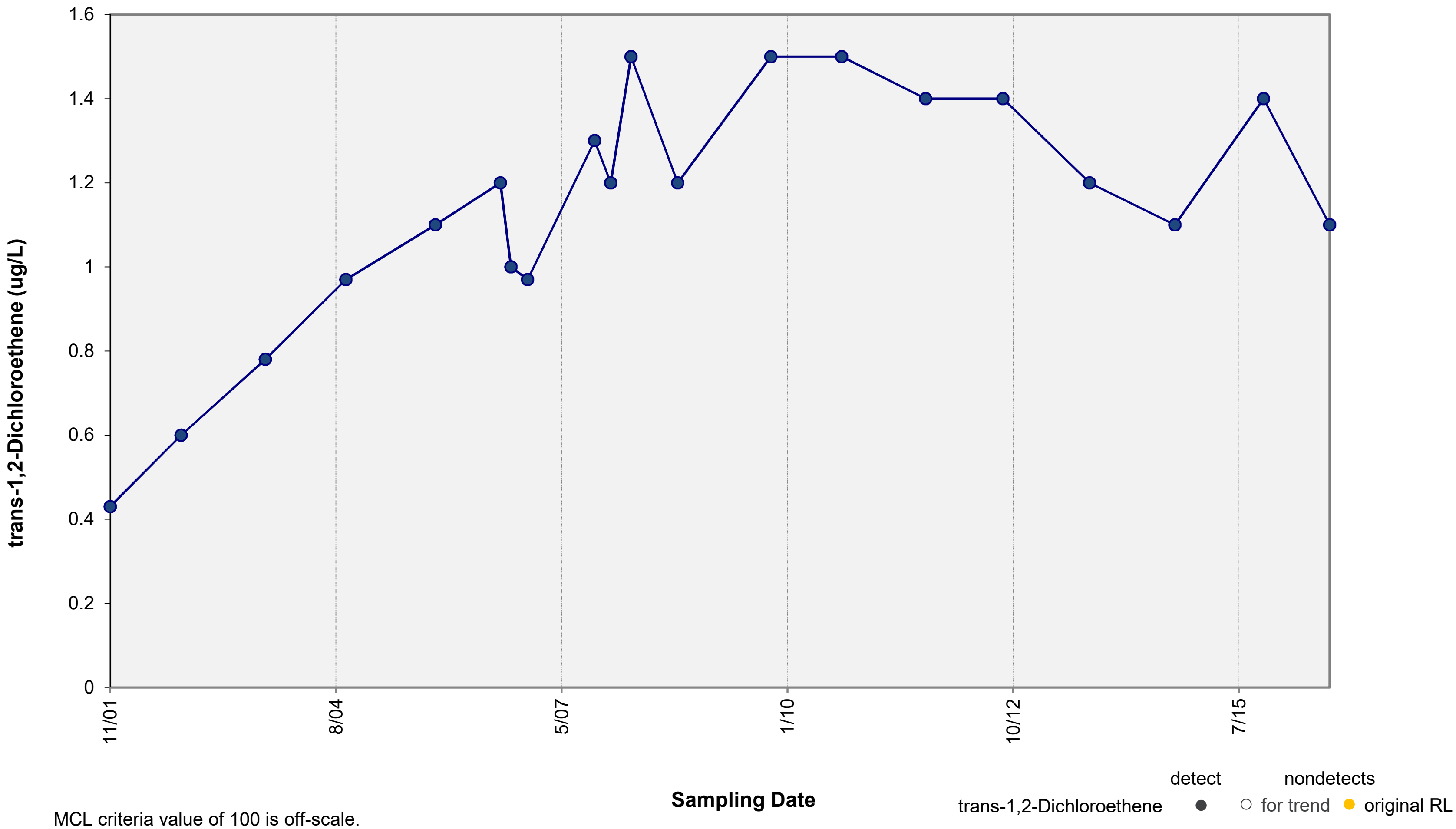
95% Confidence Interval = 0.0E+00 to 3.1E-05 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-17



MCL criteria value of 100 is off-scale.

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

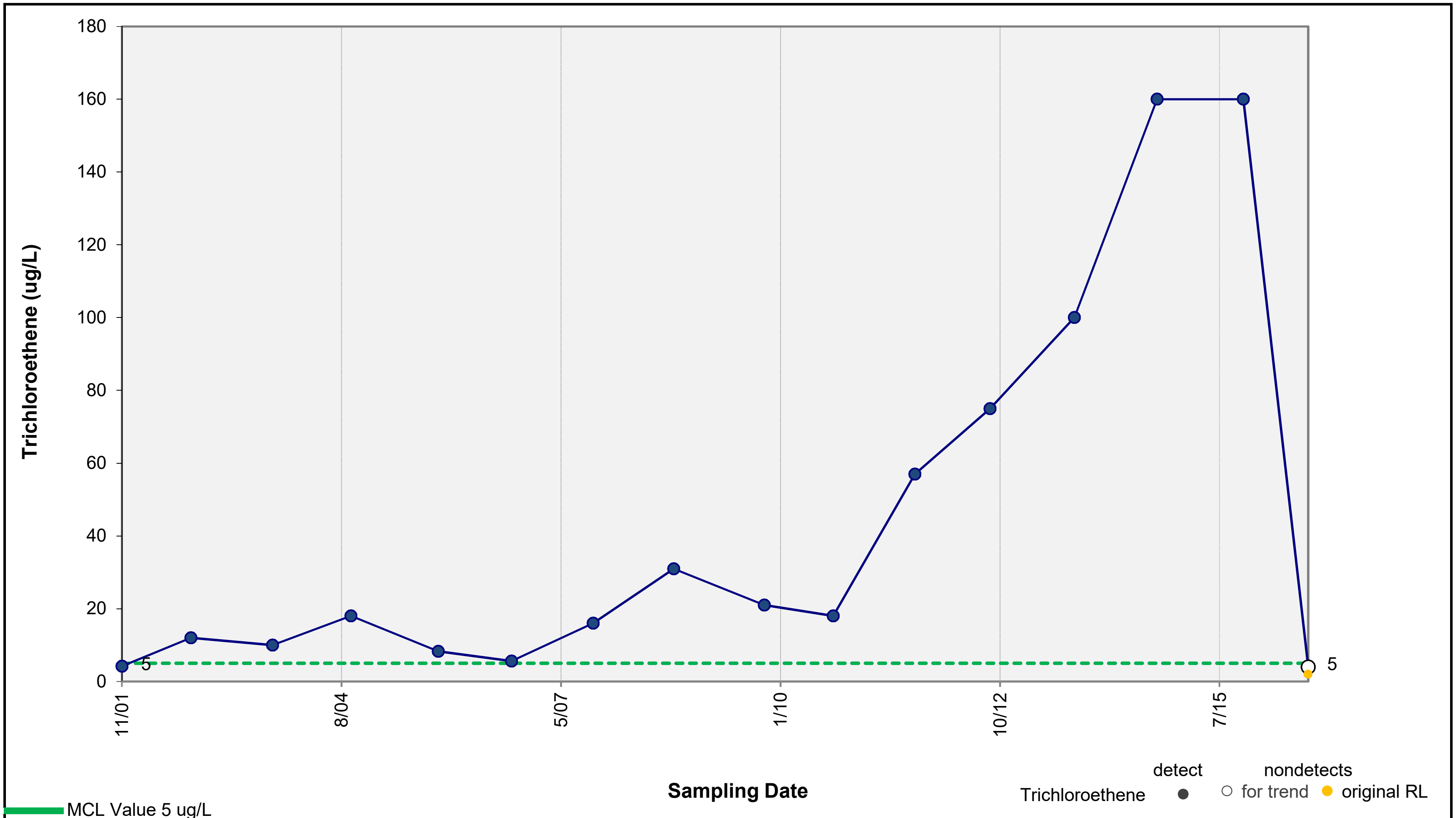
95% Confidence Interval = 3.5E-05 to 2.5E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-18



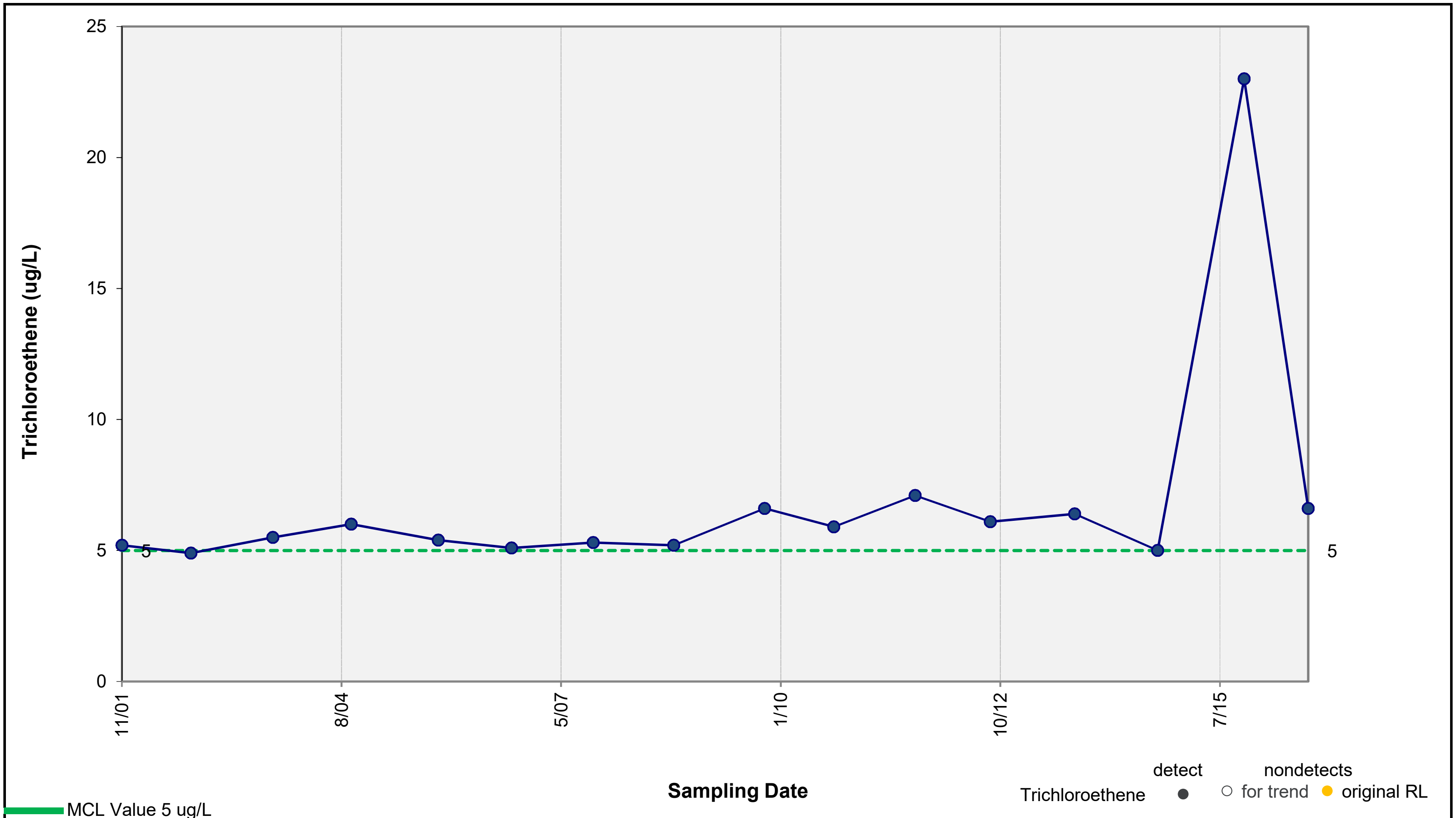
Results of Mann-Kendall Test for Trend: **INCREASING TREND**
p value = 0.002 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

Results of Sen's Estimator of Slope: **INCREASING TREND**
Median Slope Estimate = 1.8E-02 ug/L Per Day
95% Confidence Interval = 4.1E-03 to 3.2E-02 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Trichloroethene in Well HR-17
RACER Trust, Moraine, Ohio

Figure H-19



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

p value = 0.014 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 = 3.2E-04 ug/L Per Day

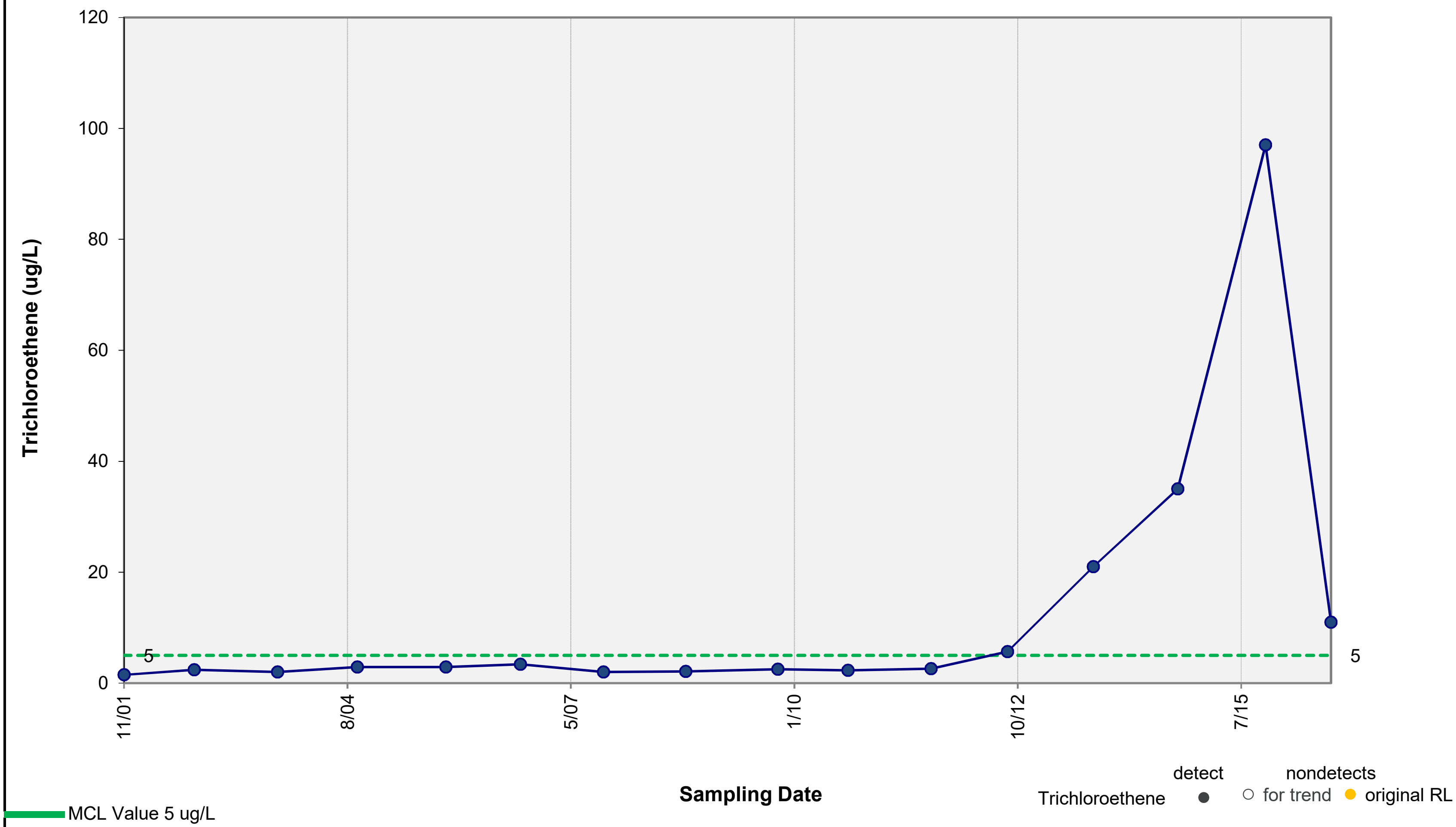
95% Confidence Interval = 3.8E-05 to 5.4E-04 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-20



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 = 1.3E-03 ug/L Per Day

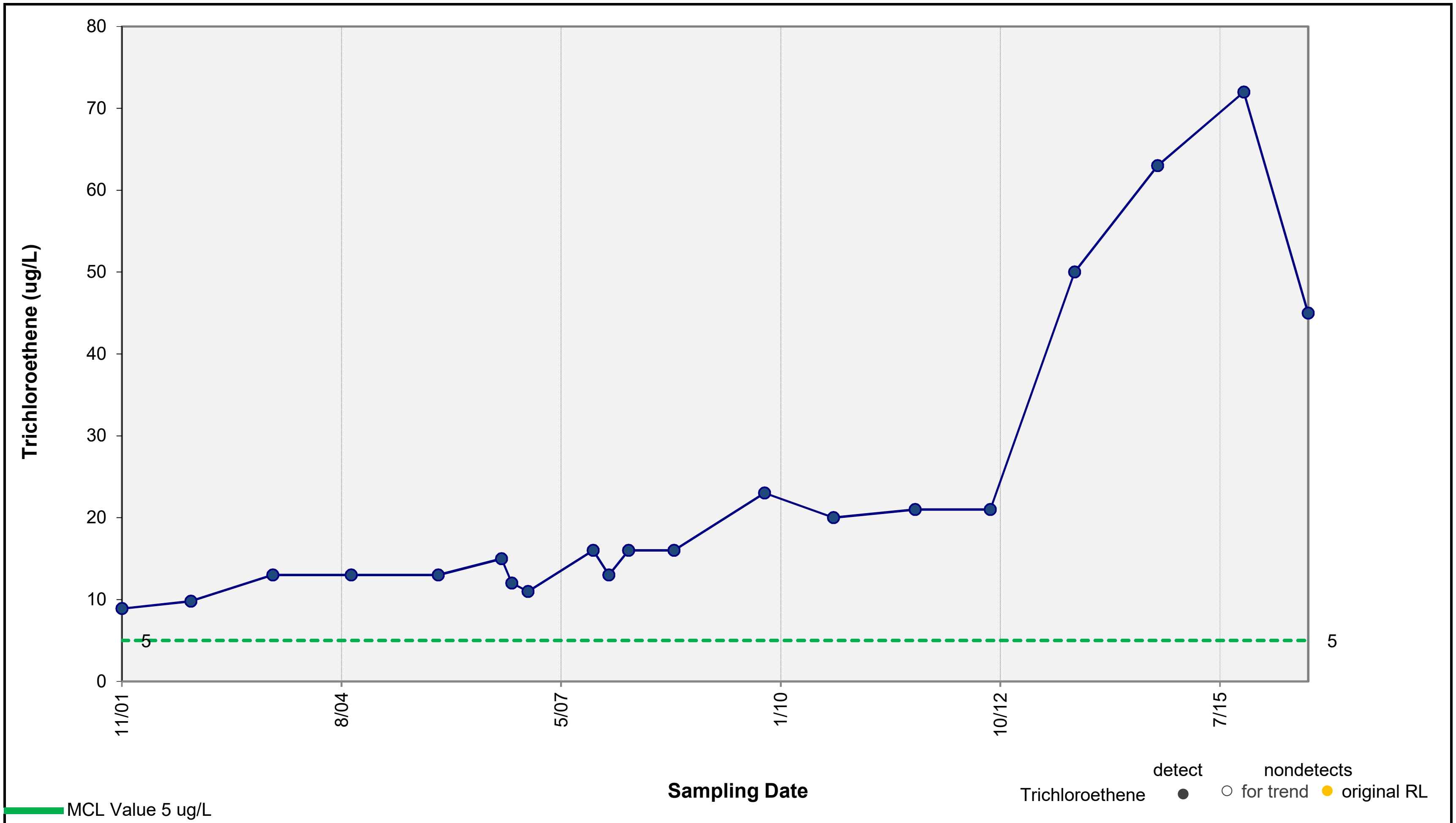
95% Confidence Interval = 2.8E-04 to 4.7E-03 ug/L Per Day

ARCADIS

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

RACER Trust, Moraine, Ohio

Figure H-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).

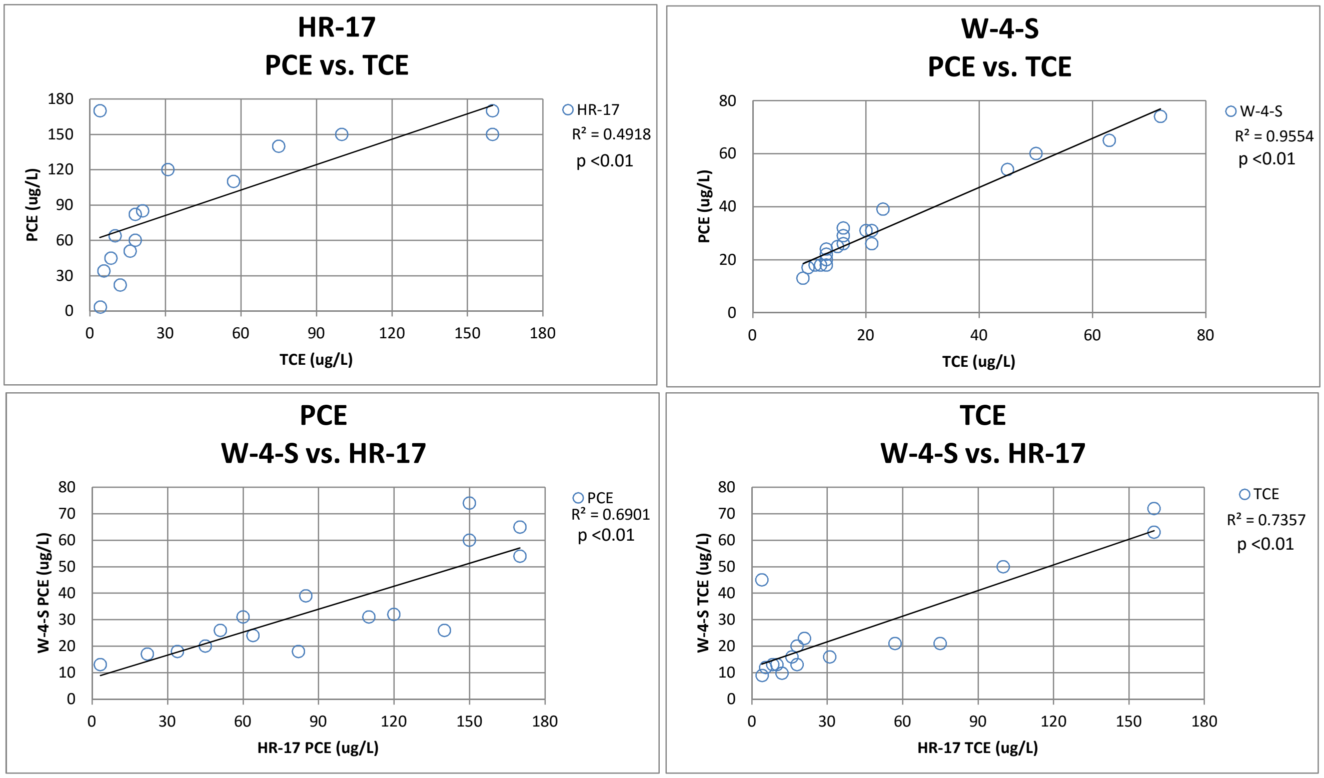
Results of Sen's Estimator of Slope: **INCREASING TREND**
Median Slope Estimate = 5.0E-03 ug/L Per Day
95% Confidence Interval = 3.1E-03 to 9.6E-03 ug/L Per Day

ARCADIS

Concentration vs. Time Plot – Trichloroethene in Well W-4-S
RACER Trust, Moraine, Ohio

Figure H-22

Figure H-23
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.

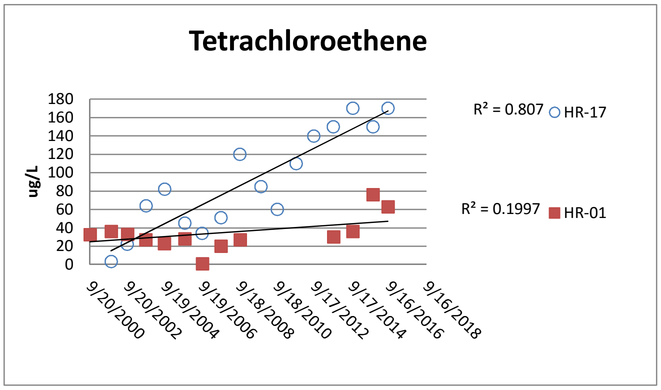
PCE = Tetrachloroethene

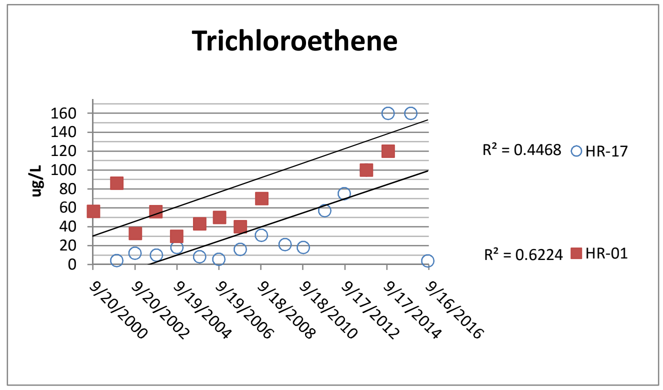
TCE = Trichloroethene

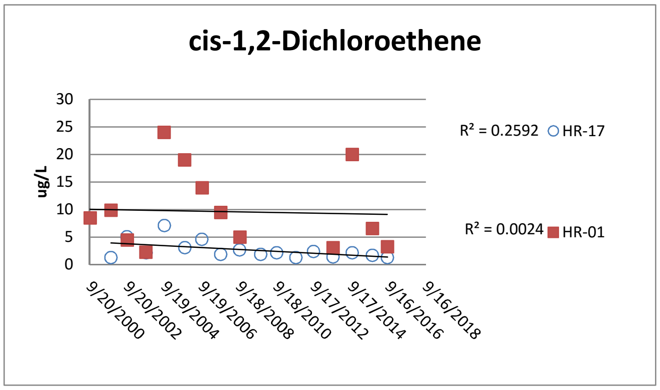
p = p-value for significance of the correlation

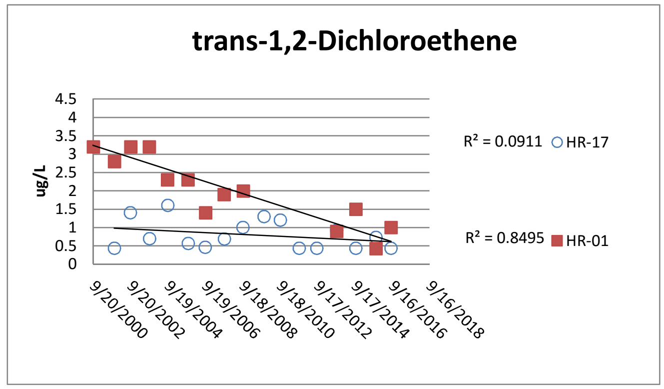
R^2 = coeffiecient of determination

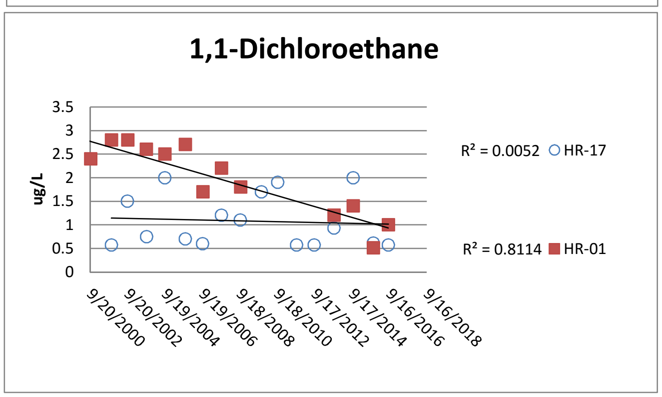
Figure H-24
South Settling Lagoon Upgradient Wells











Notes:

All results are in micrograms per liter.

Coefficient of determination was calculated in Excel 2016.

R^2 = coeffiecient of determination