2021 Annual Groundwater Monitoring Report

Pontiac North Campus

May 2022

2021 Annual Groundwater Monitoring Report

Pontiac North Campus

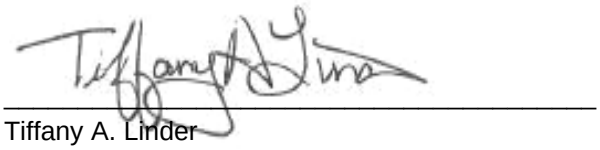
May 20, 2022

Prepared By:
Arcadis of Michigan, LLC
Michigan 48377
Phone: 248 994 2240

Prepared For:
RACER Trust

Our Ref:
30112891

Alexis Crisp
Staff Geologist



Tiffany A. Linder
Certified Project Manager

Contents

Tables

Figures

Appendices

Acronyms and Abbreviations

AOI	Area of Interest
CMS	Site Corrective Measures Study
DCE	dichloroethene
DO	dissolved oxygen
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EI	Environmental Indicator
FSP	Field Sampling Plan
GLWA	Great Lakes Water Authority
GMC	General Motors Corporation
GM LLC	General Motors LLC
GMP	Groundwater Monitoring Program
GSI	Groundwater Surface Water Interface
IMWP	Interim Measures Work Plan
LNAPL	light non-aqueous phase liquid
mg/L	milligrams per liter
MLC	Motors Liquidation Company
NRDWC	Nonresidential drinking water criteria
NRFSSBASE	Nonresidential Fiero site specific vapor intrusion to indoor air criteria – basement
NRFSSSOG	Nonresidential Fiero site specific vapor intrusion to indoor air criteria – slab on grade
NRHBDW	Nonresidential health-based drinking water
NRVI	Nonresidential volatilization to indoor air pathway screening levels
NTU	nephelometric turbidity unit
ORP	oxidation reduction potential
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PNC	Pontiac North Campus
QAPP	Quality Assurance Project Plan
RACER	Revitalizing Auto Communities Environmental Response

RCRA	Resource Conservation and Recovery Act
RDWC	Residential drinking water criteria
RFI	RCRA Field Investigation
RFSSBASE	Residential Fiero site specific vapor intrusion to indoor air criteria – basement
RFSSSOG	Residential Fiero site specific vapor intrusion to indoor air criteria – slab on grade
RVI	Residential volatilization to indoor air pathway screening levels
SSPL	Site-specific parameter list
TCE	trichloroethene
TCL	target compound list
TDS	total dissolved solids
TSS	total suspended solids
ug/L	micrograms per liter
USEPA	U.S. Environmental Protection Agency
VI	vapor intrusion
VOC	volatile organic compound

1 Introduction

On June 1, 2009, General Motors Corporation (GMC) filed for Chapter 11 protection under the U.S. bankruptcy code. On July 10, 2009 GMC was renamed Motors Liquidation Company (MLC) and on the same day some of the operating assets of GMC, including a portion of the Pontiac North Campus (PNC), were sold to a newly formed company named "General Motors Company". General Motors Company changed its name to General Motors LLC (GM LLC) on October 16, 2009. Assets not sold to GM LLC remained the property of MLC, in its capacity as debtor-in-possession in the bankruptcy case. Effective March 31, 2011, the Revitalizing Auto Communities Environmental Response Trust (RACER) was created through a Bankruptcy Settlement Agreement among MLC, the federal government, 14 states, and the St. Regis Mohawk Tribe. Ownership of MLC properties were transferred to RACER and RACER became responsible for completing remediation of those properties, including a portion of PNC (hereafter referred to as the Site) (**Figure 1**).

The Site Groundwater Monitoring Program (GMP) was presented as part of the Environmental Indicators (EI) CA 750 determination (ENVIRON 2002). Groundwater samples have been collected from select monitoring wells on either a semi-annual or annual basis since 2002 as part of the GMP to demonstrate that constituent concentrations in groundwater are stable and that migration of contaminated groundwater is not occurring. Since 2002, the GMP has been modified two times based on the results of ongoing Site investigation and monitoring activities. On October 30, 2009, MLC and GM LLC jointly submitted a request to the U.S. Environmental Protection Agency (USEPA) to modify the Site GMP, which USEPA approved on November 23, 2009 via email (**Appendix A**). On August 27, 2018, RACER submitted a request to USEPA to modify the Site GMP, which USEPA approved on September 17, 2018 via email (**Appendix B**).

A water well restriction ordinance was adopted by the City of Pontiac on August 16, 2013 prohibiting the installation and use of groundwater wells at the Site and certain areas downgradient of the Site. Existing and planned deed restrictions do restrict and will restrict use of onsite groundwater for any purpose. PNC property parcels sold by RACER include restrictions on groundwater use and prohibit the installation of groundwater wells.

Beginning with the annual event in 2009, the original sub-set of eight monitoring wells sampled located on and immediately downgradient from current or former RACER-owned properties and are listed below.

Shallow Saturated Zone	
MW-40-99	MWM16-21 (MWM16-30 added as replacement - 2017)
MWF1R	MWM16-43 (MWM16-37 added as replacement - 2016)
MWF7-01	MWW1-04
MWF12-01	MWW10-03

During the 2013 annual groundwater sampling event, it was discovered that monitoring well MWM16-43 was damaged and no longer suitable for sampling. Monitoring well MWM16-43 is located south of Columbia Ave near the former Plant 15. Monitoring well MWM16-37 located just north and east of MWM16-43, was proposed as an alternative sampling location as the screens for both wells are set at the same depth and monitor the same groundwater unit.

During the 2017 well inventory event, monitoring well MWM16-21 could not be located. Monitoring well MWM16-21 was located north of Columbia Ave near the former Plant 25. The well appears to have been paved/concreted over during parking lot resurfacing completed by the current property owner. The closest undamaged well to MWM16-21 with similar screen depth was MWM16-30, which is located southeast of MWM16-21. This well, in addition to eight other wells listed in the table below, have appropriate screened intervals and were added to the sampling list to better characterize groundwater quality in the former Fiero area and to delineate previous vinyl chloride exceedances upgradient and adjacent to MWM16-37.

Additional Shallow Saturated Zone Wells	
MWF8-01	MWF12-02
MWM31-02	MWM32-01
MWM16-29	MWM16-02
MWM16-31	MWM16-36

The objective of the 2018 GMP modification was to incorporate recommended analysis and/or gauging of certain monitoring wells based on the results of continued investigation activities and recommendations pertaining to proposed corrective measures being implemented at the Site. Modifications were also based on the results of groundwater investigation activities for 1,4-dioxane and volatile organic compounds (VOCs) at the southwestern Fiero boundary. Furthermore, monitoring points and parameters were added in 2018 throughout the USPS property based on commencing operation of the Montcalm Seep Control System.

The following modifications were proposed and accepted:

2018 GMP Modification	Basis
Add MW-02-17 in lieu of MWF1R; add MW-16-23 and MW-16-25, and newly installed MW-05-18	Monitor trends in VOCs and 1,4-dioxane concentrations
Add monitoring wells MWF7-02, MWF16-06, MW-01-17, TW-MD-01 and TW-MD-07 for gauging and sampling for VOCs/1,4-dioxane. Add 1,4-dioxane to the list of analytical parameters for MWF12-01, MWW01-SEN03, MWW1-04, MW40-99, and TW-10-02, and add VOCs to the list of analytical parameters for MWOS-01.	
Add gauging of SB-08-14, SB-25-14, SB-43-14 and maintain gauging of MWW8-65 and TWW8-01.	Ongoing Light Non-Aqueous Phase Liquid (LNAPL) investigation and testing activities
Maintenance of gauging for TW-01-03, TW-10-01, and TW-10-02, and expansion of analysis parameters for MWW01-SEN03, MWW01-SEN04, MWW5-01, TW-09-01, MWW10-SEN02	Modifications from the Montcalm Seep Interim Measures Work Plan to incorporate baseline (2018) and future annual monitoring requirements

2018 GMP Modification	Basis
Addition of INJ-01-17, INJ-02-18, MW-03-17, MW-04-17, TW-MD-01, TW-MD-02, TW-MD-03, TW-MD-04, TW-MD-05, TW-MD-06, TW-MD-07, and MWW1-15 to include gauging and sampling for specified parameters.	Modifications from the Montcalm Seep Interim Measures Work Plan to incorporate baseline (2018) and future annual monitoring requirements
Remove MWF16-17, MWW8-34, MWW8-45, MWW8-48, RWW8-119, RWW8-124, RWW8-125, RWW8-130, RWW8-131, RWW8-132, TWM2-04, TWMW-05, MWM16-15 and MWM16-45 from annual gauging. Remove MWF1R, MWM16-29, and MWM16-36 from annual gauging and sampling, and remove annual analysis of VOCs and inorganics from monitoring well MWF12-01.	Based on a combination of past analytical results and the availability of data from other nearby monitoring wells and due to complications related to accessibility

Based on comments from USEPA's review of the 2018-2020 Annual Groundwater Monitoring Reports as well as the continued evaluation of groundwater, other modifications to the 2018 GMP Modification are listed below.

- Based on USEPA's request, the following wells were added to the 2019-2021 gauging list to better assess groundwater flow at the western portion of the Site:
  - Former Fiero Parking Lot Property piezometers PZF17-01, PZF17-02, PZF17-03, PZF17-04, PZF17-05.
- The following wells were gauged during the 2020-2021 monitoring event to better assess groundwater flow at the southern portion and south of the Site:
  - Duck Pond Property and Offsite Vicinity monitoring wells MWOS-05, MWOS-07, MWDP-1R, MWDP-3R, MWDP-05, PZOS-02, and MWOS-08 which was installed in August 2020.
- The following wells were sampled in 2020-2021 and analyzed for additional constituents listed below to characterize the distribution of groundwater contaminants:
  - Former Fiero Property downgradient offsite monitoring wells MWOS-01 and MWOS-02 were analyzed for Total and Dissolved Manganese
  - Former Fiero Property downgradient offsite monitoring well MWOS-03 was analyzed for Total and Dissolved Vanadium and polychlorinated biphenyls (PCBs)
  - Former Fiero Property replacement monitoring well MWF12-01R was analyzed for 1,4-dioxane and Total and Dissolved Manganese, consistent with the 2018 GMP Modification planned analysis of MWF12-01 which was destroyed in 2019.
- The following well was not gauged in 2019-2021 based on access restrictions:
  - Monitoring well MWPS-02 located at the off-site Pontiac School Board (PSB) Property to the south.

The following sections of this report summarize the procedures used to complete the groundwater sampling and the analytical results for the groundwater samples collected during this event.

2 Groundwater Sampling Procedures

2.1 Water Level Measurements

The majority of planned groundwater and LNAPL level measurements were recorded from selected monitoring wells on October 11, 2021 in accordance with USEPA Low-Stress (or Low-Flow) Purging and Sampling Procedure (USEPA 2017). Water levels for USPS Property injection wells INJ-01-17 and INJ-02-18, and monitoring wells MW-03-17 and MW-04-17, were collected on October 14, 2021 one day after the Montcalm Seep Control groundwater injection system was turned off. The water level at PZF17-05 at the southern portion of the Fiero Parking Lots Property was collected on October 15, 2021 after additional efforts were necessary to locate the well. Groundwater and LNAPL levels were measured to the nearest 0.01 foot with an oil/water interface probe. Groundwater elevations were calculated using surveyed top-of-well casing elevations. Equivalent groundwater elevations were calculated for wells where LNAPL was present. A summary of water levels and groundwater elevations is presented in **Table 1**.

2.2 Groundwater Sample Collection

Groundwater samples were collected using low-flow sampling procedures. With one exception, samples were collected for analysis as planned on October 12 through October 19, 2021. Due to an inadvertent omission, the groundwater samples from monitoring well TW10-02 was collected on December 14, 2021. The procedures are taken from the Low-Stress (or Low-Flow) Purging and Sampling Procedure (USEPA 2017), which is the USEPA Region V standard method for collecting low-stress/low-flow groundwater samples from monitoring wells.

During sampling, purge water was monitored for dissolved oxygen (DO), temperature, specific conductivity, turbidity, oxygen reduction potential (ORP), and pH. These water quality measurements were used to determine groundwater sample stability prior to collection of the groundwater samples.

Groundwater samples were collected and submitted to Merit Laboratories, Inc. in Lansing, MI for analysis of target compound list (TCL) volatile organic compounds (VOCs) using USEPA Method 8260C, 1,4-dioxane using USEPA Method 8260B-SIMs, PCBs using USEPA Method E608.3 and select site-specific parameter list (SSPL) metals using USEPA Methods E200.8 and E245.1. Selected groundwater samples were also analyzed for geochemical parameters including calcium and magnesium utilizing USEPA method E200.8, alkalinity utilizing standard method SM2320B, hardness utilizing standard method SM2340C, and dissolved and suspended solids utilizing standard methods SM2540C/D.

Due to factors such as accessibility and recovery, the following deviations from the planned sampling protocol occurred during the 2021 groundwater monitoring event:

- At the Former Fiero Property at the southeast corner of Area of Interest (AOI) F-12, monitoring well MWF12-02 was found to be destroyed (suspected vandalism) and therefore was not able to be gauged or sampled. The well was properly abandoned on October 11, 2021. A replacement well MWF12-02R was installed in the vicinity of the former MWF12-02 on January 5, 2022. Details of the abandonment and replacement will be provided in a separate technical memorandum to USEPA. MWF12-02R will be gauged and sampled as part of ongoing Fiero VI investigation activities and the 2022 annual monitoring event.

- No gauging or analyses was completed at USPS Property monitoring well MWW5-01 as the monitoring well has been damaged and partially collapsed; the well was properly abandoned on January 3, 2022. A replacement well MWW5-01R was installed on January 4, 2022. Details of the abandonment and replacement will be provided in a separate technical memorandum to USEPA. MWW5-01R will be gauged and sampled as planned as part of the 2022 annual monitoring event.
- MWM4-06R located in the northern portion of the Site at the Former Building 25 property appears to have been "repaired" by the property owner and is not believed to be reliable for gauging purposes.

3 Groundwater Sampling Results

3.1 Groundwater Elevation

Groundwater elevations from unconfined water table zone monitoring wells (screened across the water table) were used to create a shallow groundwater potentiometric surface map (**Figure 2**). Monitoring wells included within the shallow unconfined unit are generally screened within fill material and/or glacial outwash deposits comprised primarily of sands and gravels across the Site. Apparent shallow groundwater flow across the Site is generally to the south and southwest; however, subsurface features (e.g., sewer lines, other man-made features, and re-worked native and fill material) may create localized effects (groundwater mounds or depressions). Due to the predominance of these localized effects in the vicinity of the parking lot north of the USPS building, it appears that groundwater elevations in this area are not representative of general Site hydrology and were not used to create contours on **Figure 2**. Since storm sewer bulkheading activities were conducted at the southern boundary of the Tatro (formerly Proastio) Property in 2012, average groundwater levels in that area and northern portion of the USPS have increased on the average of approximately 3 feet. Groundwater elevation data will continue to be evaluated as part of the groundwater monitoring program to monitor potential changes in groundwater flow direction.

3.2 Analytical Results

Groundwater data were compared to select criteria from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, December 21, 2020 (EGLE 2020c). The select criteria used to evaluate groundwater quality at the Site include residential and nonresidential drinking water criteria (RDWC and NRDWC), groundwater surface water interface criteria (GSI), nonresidential health-based drinking water values (NRHBDW), and residential and nonresidential groundwater volatilization to indoor air inhalation criteria. In addition, based on updated vapor intrusion (VI) guidance (EGLE 2020b) groundwater data from across the Site, with the exception the Former Fiero Property, was also compared to residential and nonresidential volatilization to indoor air pathway (RVI and NRVI) screening levels for groundwater not in contact. These screening levels are a voluntary tool used to evaluate site risk and if more site-specific criteria would be appropriate. Furthermore, following the results of the 2019 Annual Groundwater Monitoring Report, development of site-specific VI criteria were requested from EGLE for comparison to monitoring wells located on the former Fiero portion of the Site (EGLE 2020a). These criteria include residential and nonresidential Fiero site-specific volatilization to indoor air criteria for basement (RFSSBASE and NRFSSBASE) and slab-on-grade (RFSSSOG and NRFSSSOG) scenarios.

A summary of the October 2021 annual sampling groundwater analytical data at the Site except for the former Fiero portion of the Site is included in **Table 2,** while groundwater analytical data for the former Fiero portion of the Site is included in **Table 3** given that site-specific criteria apply. Analytical data maps for the entire Site are presented on **Figure 3A** (VOCs and pH), **Figure 3B** (inorganics and total dissolved solids (TDS), and **Figure 3C** (PCBs). Groundwater analytical data near the property boundaries of the Site are summarized on **Figure 4**. Note that analytical parameters which are listed on **Figures 3A, 3B, 3C, and 4** include only those parameters where a regulatory exceedance of promulgated criteria for RDWC, NRDWC, GSI, NRHBDW, or VI-related criteria or screening levels exists anytime in the timeframe from 2017-2021. For example, on **Figures 3A and 4**, no groundwater analytical results for Former Fiero Property monitoring wells sampled in this event have exceeded nonresidential Fiero site-specific basement/slab-on-grade criteria. Furthermore, on **Figure 4**, no groundwater analytical results for non-Fiero property monitoring wells sampled in this event have exceeded EGLE Part 201 generic nonresidential groundwater volatilization to indoor air inhalation criteria (EGLE 2020c). Therefore, in these instances, no such criteria or exceedances are referenced on the figures.

Of note, the RDWC and NRDWC for pH are aesthetic drinking water values. Several inorganics including copper, iron, and manganese have RDWC and NRDWC which are aesthetic drinking water values as well. The NRHBDW values associated with these inorganic constituents will be utilized for comparison as that value is more applicable.

All test results for this event for other target parameters which were analyzed and either not detected or detected at concentrations below specified criteria are included in **Tables 2 and 3**. To the extent that exceedances are realized in future years or promulgated criteria change rendering additional exceedances, additional parameters will be added to the analytical databox figure in future reports as relevant.

Criteria used for comparison include those designed to be protective of potential exposures via drinking water use and groundwater interfacing with surface water and are conservative for evaluating the groundwater data from the Site. The criteria are being used to provide a point of reference for detected constituents. The Site and the immediate vicinity obtain potable water from the Great Lakes Water Authority (GLWA) and do not rely on local groundwater as a drinking water supply. In addition, a groundwater restriction ordinance prohibiting the use of groundwater wells at the Site and certain areas downgradient of the Site was adopted by the City of Pontiac on August 16, 2013. Therefore, groundwater with constituent concentrations higher than these generic screening criteria does not indicate that the groundwater poses unacceptable risks given the existing or planned groundwater use and other restrictions.

Given the existing or planned groundwater use, residential drinking water use is not a current or reasonably expected future use of groundwater at the Site or in the adjacent groundwater ordinance area. However, groundwater at the Site does have the potential to migrate off site based on the interpreted southwesterly groundwater flow direction. Due to the potential for off-site migration, RDWC, NRDWC, and GSI are used for screening data near the downgradient property boundary. In addition, deed restrictions have been or will be recorded for each Site parcel which prohibit building or occupying new structures without first assessing the volatilization to indoor air pathway or installing vapor mitigation measures. To evaluate exposure risks associated with the potential for groundwater to migrate offsite, applicable VI criteria are used for screening data near the downgradient property boundary as well.

The October 2021 groundwater data, presented in **Tables 2 and 3** and on **Figures 3A, 3B, 3C, and 4**, have been compared to RDWC, NRDWC, GSI, NRHBDW, and applicable VI criteria/screening levels as a frame of reference for the evaluation of groundwater quality both on-site and near the downgradient property boundary. Although there are groundwater concentrations throughout the Site which exceed criteria, a groundwater ordinance, and

planned and existing groundwater use restrictions will prevent unacceptable risk due to these exceedances. Based on this premise the results and conclusions of the 2021 groundwater monitoring event described below are consistent with previous year's events and align with implemented and proposed interim/corrective measures at the Site.

The following is a summary of the October 2021 groundwater sample results focused on property boundary exceedances:

VOCs

- The concentrations of trichloroethene (TCE) detected in monitoring well MWF16-23 (18 ug/L) located at the west-southwest portion of the Former Fiero Property boundary exceeds the RDWC of 5 ug/L, NRDWC of 5 ug/L, RFSSSOG criteria of 15 ug/L, and RFSSBASE criteria of 8.1 ug/L.
- The concentration of TCE detected in monitoring well MW-02-17 (7 ug/L) located at the far southwest corner of the Former Fiero Property exceeds the RDWC of 5 ug/L and NRDWC of 5 ug/L. Furthermore, the concentration of tetrachloroethene (PCE) detected in monitoring well MW-02-17 (7 ug/L) exceeds the RDWC of 5 ug/L and NRDWC of 5 ug/L.
- The concentrations of 1,4 Dioxane detected in monitoring well MWF12-01R (83 ug/L) located at the south-central portion of the Former Fiero Property exceeds RDWC of 7.2 ug/L.
- The concentration of Vinyl Chloride detected in monitoring well MWM16-37 (2 ug/L) located at the north portion of the Former Building 15 Property exceeds RDWC and NRDWC of 2 ug/L.

PCBs

- Monitoring well TW-MD-06 located in the southern portion of the USPS property contained a PCB concentration (0.9 ug/L) which exceeded RDWC, NRDWC, and GSI.

Inorganics

- The concentration of iron at monitoring wells TW-MD-02 (11,300 ug/L), TW-MD-03 (8,480 ug/L), TW-MD-04 (11,700 ug/L), TW-MD-05 (8,210 ug/L), TW-MD-06 (9,840 ug/L), and TW-MD-07 (34,600 ug/L) exceeded the NRHBDW criteria of 5,600 mg/L.
- MWW1-04, located at the southern property boundary just west of the Saginaw Street extension north of Montcalm Street, exhibited an elevated field pH reading of 9.61 which exceeded the RDWC and NRDWC of 6.5 to 8.5, and GSI criterion of 6.5 to 9.0. The pH readings from all other wells sampled in the October 2021 event were within the GSI pH range of 6.5 to 9.0.

Total Dissolved Solids

- All monitoring wells sampled for total dissolved solids (TDS) at the USPS Property for purposes of Montcalm Seep Control System monitoring exceeded the GSI criterion of 500,000 ug/L except for MWW1-04. This includes monitoring wells TW-MD-01 through TW-MD-07 which are located along the southern property boundary. TDS concentrations exceeding GSI criteria ranged from 730,000 to 3,040,000 ug/L.

3.3 Analytical Data Quality Assurance / Quality Control

For lab analysis quality control, one duplicate sample was ordered for every ten groundwater samples, and 1 matrix spike/matrix spike duplicate (MS/MSD) was ordered for every twenty groundwater samples. Furthermore, one trip blank was ordered for each sample set which included analysis for VOCs. Within a day after delivery of each set of samples to Merit Laboratories, a sample set receipt was issued from the laboratory and checked for any inconsistencies with the Chain of Custody (COC) and planned reference test methods. No issues with hold times or inconsistencies were noted for the October 2021 groundwater sampling event.

Standard Level II laboratory analytical reports were delivered for each COC in both pdf files and electronic data deliverable (EDD) packages, followed by laboratory quality control reports. EDD files were uploaded to databases from which tables were developed, and results were checked against the laboratory reports and evaluated with respect to data flags as well as consistency with past results. For the October 2021 data, there were no trip blank detections, and duplicate sample results were representative of matched samples.

A review was performed on twelve (12) Level II QC reports for groundwater data collected in October of 2021, and all laboratory qualifiers were evaluated. Based on the review, several VOC results are estimated (J/UJ) due to LCS/LCSD percent recoveries outside of control limits and/or LCS/LCSD relative percent difference (RPD) exceedances, and MS/MSD recoveries outside of control limits. VOC results which are estimated include the following:

- Benzene (MWM2-23)
- Chlorobenzene (MWM2-23)
- Chloroform (MWF16-23
- 1,3-Dichlorobenzene (MWM2-23)
- Cis-1,2-Dichloroethene (MWF16-23, MWF16-23)
- 1,4-Dioxane (MWW01-SEN03, MWF16-23, MW-01-17, MWF7-02)
- Ethylbenzene (MWM2-23)
- Methyl cyclohexane (MWM2-23)
- 1,1,2,2-Tetrachloroethane (MWM2-23)
- 1,1,1-Trichloroethane (MWM2-23, MWF7-02)
- Toluene (MWM2-23)
- Trichloroethene (MWM2-23)
- o-Xylene (MWM2-23)
- m, p-Xylene (MWM2-23)

In summary, while the results for numerous VOCs from the October 2021 groundwater sampling event are estimated which introduces possibilities for both limited high or low bias, reported constituent concentrations did not vary from past results outside of normal variability and trending to the extent that changes identified cleanup criteria exceedances or the associated findings, conclusions, or recommendations in this report. Therefore, no material issues with laboratory analysis or reporting were identified which affects usability of any of the data.

4 Trends and Conclusions

4.1 Evaluation of Trends

Select key constituents detected in numerous events in both interior and property boundary wells were graphed to allow for evaluation of trends in concentration over time. These graphs are presented in **Appendix C**. Identified trends are as follows:

- The elevated pH of groundwater in MWW1-04, located at the southwest corner of the USPS property, has consistently exceeded the GSI pH range of 6.5 to 9.0 since 2007. While the pH ranged from 11.15 to 11.55 from 2017 through 2020, the pH reading in 2021 was trending back towards neutral at 9.61. This characteristic has been isolated to this location, as pH readings from other wells (MWOS-03 and MWW1-15) near and downgradient of MWW1-04 are within the GSI criteria limits. This includes pH data from MWW1-06 from 2003-2008 (**Appendix C**) and from MWOS-03 in 2016 and 2021. All pH results from these downgradient locations are within the 6.5 to 9.0 range, indicating this characteristic is localized. The uppermost portion of the well at MWW1-04 is screened across brick and gravel fill material which may be the cause of the elevated pH at this location.
- The concentration of PCBs at monitoring well TW-MD-06 (**Figure 3C**) located in the southern portion of the USPS property has gradually increased from under detection limits in 2017 to 0.9 ug/L in 2021, and continues to exceed RDWC, NRDWC, and GSI. The concentration of PCBs in monitoring well MWW1-04 located further west along the south Site boundary has fluctuated above, below, and equal to the GSI criteria over the past few annual sampling events, with results under the detection limit in 2021. Due to the low water solubility and leaching potential of PCBs, moderate to high partition coefficients (preferentially partition to organic matter in soils and sediments) (USEPA 2021), and distance to the nearest down-gradient surface water body, PCBs are very unlikely to migrate to Harris Lake. Off-site monitoring well MWOS-03, located north of Harris Lake, continues to be analyzed for PCBs to confirm on-site impacts do not pose a GSI risk to Harris Lake. Results have not identified PCB detections at this down-gradient location (**Table 2**).
- Vinyl chloride concentrations at MWM16-37, located on-site south of Columbia Avenue, have generally decreased since 2017. However, the most recent concentration from the 2021 sampling still exceeds RDWC and NRDWC criteria.
- The concentration of TCE at MWF16-23 located along the west-southwest portion of the Former Fiero Property boundary gradually increased from 15 ug/L to 21 ug/L from 2017 through 2020. However, the TCE concentration dropped back down to 18 ug/L in October 2021. The TCE concentration exceeds RDWC, NRDWC, RFSSSOG and RFSSBASE. Continued focused investigation activities at the Former Fiero Property are ongoing to further evaluate potential VI risk to off-site receptors. At the far southwest corner of the Former Fiero Property at MW-02-17, the concentration of PCE has generally fluctuated above and below a concentration which exceeds the RDWC and NRDWC of 5 ug/L. The concentration of TCE has a gradual increasing trend whereas the 2021 result of 7 ug/L now exceeds the RDWC and NRDWC of 5 ug/L, but remains below the RFSSBASE criteria of 8.1 ug/L.
- The concentration of PCE at MWF7-02 located within the northern portion of the Former Fiero Powerhouse Property has been gradually increasing from 34 ug/L to 84 ug/L from 2018 through 2021. The PCE concentration exceeds RDWC, NRDWC and GSI but is below RFSSSOG and RFSSBASE. The concentration of TCE at MWF7-02 has remained relatively steady in concentration from 2016 to 2021 and does not exceed criteria. Trends of PCE and TCE in this monitoring well will continue to be monitored.

- The concentration of PCE at MWF16-06 located within the southeast portion of the Former Fiero Assembly Property had increasing concentrations from 2017 through 2020, exceeding RDWC and NRDWC. During sampling through 2021, PCE has decreased from 130 ug/L to 56 ug/L. PCE concentration exceeds RDWC and NRDWC but is below RFSSSOG and RFSSBASE. The concentration of TCE at MWF16-06 has increased between April 2017 and March 2021, from 11 ug/L to 30 ug/L. However, more recent sampling events in June 2021 and October 2021 the concentration decreased to 5 ug/L and only exceeds RDWC and NRDWC. Trends of PCE and TCE in this monitoring well will continue to be monitored.
- As depicted in Figure 4, multiple wells at the USPS property in the area of groundwater reinjection and along the southern boundary that have been analyzed under the GMP since 2018 continue to exceed RDW, NRDW and GSI. TDS was added to the groundwater monitoring program in 2018 only to be used as an indicator of radius of influence for the Montcalm Seep control system. In general, results appear to reflect increasing concentration trends from 2018 to 2021. Sentinel wells off-site (MWOS-01, MWOS-02, and MWOS-03) have been sampled to delineate GSI detections at AOI W-1. These sentinel wells have not had exceedances above GSI.
- Results may reflect increasing trends of TDS, iron and manganese in USPS wells located in the area of the Montcalm Seep Control System groundwater reinjection, but these concentrations are not expected to impact results at the property boundaries. Review of other groundwater data from annual sampling events does not indicate increasing trends in the interior of the Site that may impact results at the property boundaries.

4.2 Conclusions and Recommendations

Conclusions of the 2021 groundwater monitoring event are summarized below. As described in Section 3.2, based on updated VI guidance, groundwater data from across the Site, except for the Former Fiero Property, was also compared to RVI and NRVI screening levels for groundwater not in contact. Site-specific VI criteria developed in 2020 were also used for comparison to results from monitoring wells located on the Former Fiero Property. Consistent with the 2020 Annual Groundwater Monitoring Report, NRHBDW values were used for comparison for several inorganics including copper, iron, and manganese as these constituents had RDWC and NRDWC which represent aesthetic drinking water values. The NRHBDW values associated with these inorganic constituents were utilized for comparison as these health-based values are more applicable than the aesthetic values.

Although there were data fluctuations and certain criteria comparisons were added or changed in 2020, referenced exceedances did not change to the extent that trigger reconsideration or changes to the implemented or proposed interim/corrective measures at the Site or the on-going investigation of the Former Fiero Property.

As previously indicated, the Site and the immediate vicinity obtain potable water from the Great Lakes Water Authority (GLWA) and do not rely on local groundwater as a drinking water supply. In addition, a groundwater restriction ordinance prohibiting the use of groundwater wells was adopted by the City of Pontiac on August 16, 2013 for the Site and certain areas downgradient of the Site. Therefore, groundwater with constituent concentrations higher than the generic drinking water screening criteria does not indicate that the groundwater poses unacceptable risks given the existing or planned groundwater use restrictions.

Although several groundwater samples within the Site contain concentrations of VOCs which exceed applicable VI criteria, downgradient wells within the property or near the property boundary do not exceed those criteria. MWF16-23, located along the west-southwest Former Fiero Property boundary, has a TCE concentration that exceeds the Fiero site-specific VI criteria. Further to the south, the concentration of TCE in monitoring well MW-02-17 appears to be increasing but remains slightly below the Fiero site-specific VI criteria.

Following the 2019 Annual Groundwater Monitoring Report recommendations to develop site-specific VI criteria development for the Former Fiero Property, five monitoring wells and 6 soil vapor monitoring points (SVMPs) have been installed to delineate potential downgradient off-site migration of TCE and PCE. Furthermore, source investigation activities have been initiated to further assess the vapor intrusion pathway and risk to off-site receptors.

Except for TDS, other GSI exceedances in on-site wells are delineated by downgradient on-site and/or off-site wells which do not contain constituents that exceed GSI. TDS exceeds GSI criteria along the southern property boundary north of Montcalm Street.

Contingent on the results of implementing the recommendations below, groundwater data and trends continue to support USEPA's 2004 CA750 determination that migration of contaminated groundwater is under control for the Pontiac North Facility and the 2017 CA750 determination that migration of contaminated groundwater is under control for the former Pontiac Fiero Assembly Facility.

Based on the results of continued groundwater monitoring and current regulations and guidelines, the following recommendations are suggested:

- Continue the implementation of focused investigation activities to further assess the vapor intrusion pathway and risk to off-site receptors including monitoring VOC concentrations in groundwater in wells near the Former Fiero Property boundary.

No changes are recommended to the annual groundwater monitoring program at this time. However, the program will be re-evaluated as pending investigation activities into potential exposure pathways are completed and as the final decision process progresses. Any recommended changes will be proposed and reviewed with USEPA prior to implementation. It is noted that a temporary monitoring program related to the VOCs at the Former Fiero Property is being developed for USEPA review.

5 References

Encore Environmental Consortium, LLC (EEC). 2001a. RCRA Facility Investigation (RFI) Work Plan, General Motors Corporation, Pontiac North Campus, Pontiac, Michigan. May, 2001.

ENVIRON International Corporation (ENVIRON). 2002. Resource Conservation and Recovery Act Environmental Indicators Report, General Motors Corporation, Pontiac North Campus Facility, Pontiac, Michigan. July, 2002.

Michigan Department of Environment, Great Lakes, and Energy (EGLE) 2020a. Former Fiero Assembly Site-Specific Criteria Evaluation. April 21.

EGLE. 2020b. Guidance Document for the Vapor Intrusion Pathway. Appendix C – Volatilization to Indoor Air Pathway (VIAP) Screening Levels. September 4, 2020.

EGLE. 2020c. Clean Up Criteria Requirements Table 1: Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, December 21, 2020.

U.S. Environmental Protection Agency (USEPA; Region I). 1996. Low-Stress (or Low-Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells – Revision 4. July 30, 1996; Revised September 19, 2017.

USEPA. 2021. Exposure Assessment Tools by Chemical Classes - Other Organics. Dioxins, Furans, and PCBs. https://www.epa.gov/expobox/exposure-assessment-tools-chemical-classes-other-organics

Tables

Table 1
Groundwater Elevation Summary, October 2021
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Well ID	Well Elevation [1]	Depth to Water (ft)	Depth to LNAPL (ft)	Total Depth (ft)	Groundwater Elevation	LNAPL Thickness (ft)	Equivalent Groundwater Elevation [2]
OFFSITE							
MWOS-01	943.79	7.08	--	13.50	936.71	--	--
MWOS-02	943.46	6.83	--	15.35	936.63	--	--
MWOS-03	944.35	7.38	--	18.13	936.97	--	--
MWOS-04	942.52	3.56	--	12.34	938.96	--	--
MWOS-06	944.01	0.88	--	12.35	943.13	--	--
FIERO							
F-7							
MWF7-02	970.58	18.22	--	24.85	952.36	--	--
F-8							
MWF8-01	972.94	17.77	--	27.19	955.17	--	--
F-12							
MWF12-01R	967.99	19.56		22.75	948.43	--	--
MWF12-02	966.81	Abandoned	--	NM	--	--	--
F-16							
MWF16-10	973.57	18.87		30.75	954.70	--	--
MWF16-11	973.36	18.01	--	25.57	955.35	--	--
MWF16-05	973.68	19.29	--	22.60	954.39	--	--
MWF16-06	973.77	9.38	--	28.18	964.39		
MWF16-16	973.22	21.59	--	31.26	951.63	--	--
MWF16-23	973.39	23.23	--	30.45	950.16	--	--
MWF16-25	975.24	25.39	--	36.77	949.85	--	--
MW-02-17	972.52	25.32	--	29.50	947.20	--	--
MW-05-18	975.21	26.62	--	33.45	948.59	--	--
Offsite							
MW-08-21	975.50	26.12	--	30.10	949.38	--	--
DEMOLITION AREA							
W-1							
MWW01-SEN03	981.67	36.81	--	48.05	944.86	--	--
MWW01-SEN04	971.12	29.03	--	37.90	942.09	--	--
MWW1-04	947.49	5.17	--	16.35	942.32	--	--
MWW1-06	943.63	3.34	--	14.10	940.29	--	--
MW-40-99	952.32	9.51	--	18.20	942.81	--	--
MW-01-17	949.40	6.16	--	10.74	943.24		
TW-01-01	972.95	28.98	24.45	NM	943.97	4.53	947.96
TW-01-02	973.38	21.00	20.90	NM	952.38	0.10	952.47
TW-01-03	969.06	14.20	--	23.09	954.86	--	--
SB-43-14	969.90	Dry	--	18.30	--	--	--
W-5							
MWW5-01	970.57	Damaged	--	NM	--	--	--
W-8							
TW-03-01	970.48	18.96	18.21	NM	951.52	0.75	952.18
MWW8-36	968.62	24.81	13.33	NM	943.81	11.48	953.91
MWW8-65	969.62	--*	24.50	34.60	NA	10.10	NA
RWW8-129	966.71	14.32	13.52	NM	952.39	0.80	953.09
RWW8-133	966.34	12.82	12.81	NM	953.52	0.01	953.53
TW-11-01	969.28	10.06	4.38	NM	959.22	5.68	964.22
TW-11-02	970.38	9.30	4.84	NM	961.08	4.46	965.00
TW-09-01	970.01	11.55	11.52	NM	958.46	0.03	958.49
TW-10-01	971.91	18.07	--	32.79	953.84	--	--
TW-10-02	971.83	13.47	--	35.28	958.36	--	--
TWW8-01	969.37	30.34	21.68	NM	939.03	8.66	946.65
W-10							
MWW10-03	958.20	6.52	--	NM	951.68	--	--
MWW10-SEN01	967.31	15.96	15.95	NM	951.35	0.01	951.35
MWW10-SEN02	967.68	24.65	--	28.34	943.03	--	--
SB-25-14	966.21	13.65	13.50	NM	952.56	0.15	952.69
RW-08-14	NS	20.86	6.8	NM	NA	14.06	NA

See Notes on last page.

Table 1
Groundwater Elevation Summary, October 2021
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Well ID	Well Elevation [1]	Depth to Water (ft)	Depth to LNAPL (ft)	Total Depth (ft)	Groundwater Elevation	LNAPL Thickness (ft)	Equivalent Groundwater Elevation [2]
MFD							
M-2							
MWM2-23	970.82	15.42	--	24.35	955.40	--	--
MWM2-28	971.07	14.99	--	25.84	956.08	--	--
MWM2-37	970.52	47.75	--	66.77	922.77	--	--
M-4							
MWM4-05	985.70	5.27	--	23.06	980.43	--	--
MWM4-06R	984.85	CNL	--	NM	NA	--	--
M-5							
MWM5-02	977.07	18.94	--	27.41	958.13	--	--
MWM5-03	978.78	20.65	--	33.59	958.13	--	--
M-16							
MWM16-02	979.83	21.84	--	28.71	957.99	--	--
MWM16-30	985.37	26.68	--	31.16	958.69	--	--
MWM16-31	981.08	22.73	--	33.55	958.35	--	--
MWM16-37	980.37	22.32	--	35.24	958.05	--	--
M-31/M-32							
MWM31-02	983.64	26.07	--	37.98	957.57	--	--
MWM32-01	983.64	26.56	--	35.13	957.08	--	--
Montcalm							
INJ-01-17	965.12	6.50	--	16.00	958.62	--	--
INJ-02-18	966.27	8.45	--	19.50	957.82	--	--
MW-03-17	964.77	5.99	--	21.90	958.78	--	--
MW-04-17	965.18	6.56	--	24.50	958.62	--	--
TW-MD-01	946.20	4.11	--	10.14	942.09	--	--
TW-MD-02	945.98	6.20	--	12.43	939.78	--	--
TW-MD-03	946.60	5.39	--	11.93	941.21	--	--
TW-MD-04	946.98	6.05	--	13.59	940.93	--	--
TW-MD-05	946.71	5.68	--	13.33	941.03	--	--
TW-MD-06	947.08	6.12	--	16.85	940.96	--	--
TW-MD-07	947.08	5.57	--	14.73	941.51	--	--
MWW1-15	951.37	8.33	--	18.40	943.04	--	--
Former Fiero Parking Lot							
PZF17-01	963.37	10.33	--	15.55	953.04	--	--
PZF17-02	977.43	23.36	--	31.03	954.07	--	--
PZF17-03	967.04	15.22	--	22.16	951.82	--	--
PZF17-04	972.47	19.33	--	28.42	953.14	--	--
PZF17-05	975.97	25.56	--	34.02	950.41	--	--
Duck Pond							
MWOS-05	944.26	0.50	--	11.08	943.76	--	--
MWDP-1R	947.41	0.93	--	14.08	946.48	--	--
MWDP-3R	948.13	3.05	--	14.44	945.08	--	--
MWDP-05	944.35	1.18	--	9.85	943.17	--	--
Sump	NA	0.60	--	--	--	--	--
MWOS-07	947.53	2.89	--	14.96	944.64	--	--
MWOS-08	975.09	25.34	--	28.67	949.75	--	--
MWOS-09	976.42	NM	--	NM	--	--	--
PZOS-02	946.38	4.60	--	14.85	941.78	--	--

Notes:
1. All depth to waters measured from Top of Casing.
2. Water levels collected on October 11, 2021. INJ-01-17, INJ-02-18, MW-03-17, and MW-04-17 water levels were collected on October 14, 2021. PZF17-05, RW-08-14, and MW-40-99 water levels were collected on October 15, 2021.
3. MWOS-09 was properly abandoned and replaced during the annual gauging event, and was not gauged for this reason.
4. During the annual gauging event, MWF12-02 was found to be destroyed. It was properly abandoned and will be replaced.
5. During the annual gauging event, MWW5-01 was found to be damaged, it was not gauged for this reason. It will be properly abandoned and re

Abbreviations:

--	Not available
CNL	Could not locate
ft	Feet
LNAPL	Light non-aqueous phase liquid
NA	Not applicable
NM	Not measured
NS	Well has not been surveyed

Footnotes:
[1] Top of Casing Elevation is in feet National Vertical Geodetic Datum (1988)
[2] The equivalent groundwater (GW) elevation is calculated where LNAPL is present using the LNAPL surface elevation, the thickness of LNAPL and the approximate specific density of the LNAPL (0.88). This specific density is most representative of LNAPL samples collected at the Site. The calculation is as follows:
Equivalent GW elevation = LNAPL surface elevation - ((1-specific density of the LNAPL) x LNAPL thickness)

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	INJ-01-17 10/14/21 INJ-01-17_GW-10142021	INJ-02-18 10/14/21 INJ-02-18_GW-10142021	MW-01-17 10/15/21 MW-01-17_GW-10152021	MW-03-17 10/14/21 MW-03-17_GW-10142021	MW-04-17 10/14/21 MW-04-17_GW-10142021
Field Parameters														
pH	6.5-8.5	6.5-8.5	6.5-9.0	- -	- -	- -	- -	- -	SU	7.0	7.14	7.62	7.04	6.98
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	NTU	1.66	22.5	2.08	0.02	2.39
PCBs														
Aroclor-1016 (PCB-1016)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Aroclor-1221 (PCB-1221)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Aroclor-1232 (PCB-1232)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Aroclor-1242 (PCB-1242)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Aroclor-1248 (PCB-1248)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Aroclor-1254 (PCB-1254)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Aroclor-1260 (PCB-1260)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Total PCBs	0.5	0.5	0.2	- -	45	45	- -	- -	ug/L	< 0.1 U	< 0.1 U	NA	< 0.1 U	< 0.1 U
Volatile Organics														
Acetone	730	2,100	1,700	- -	1,000,000,000	1,000,000,000	*40,000,000*	40,000,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Benzene	5	5	200	- -	5,600	35,000	*28*	66	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	80	80	- -	- -	4,800	37,000	*34*	73	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	80	80	- -	- -	470,000	3,100,000	*2,700*	6,200	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane (Methyl bromide)	10	29	5	- -	4,000	9,000	*55*	80	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	240,000,000	240,000,000	*4,300,000*	4,300,000	ug/L	< 25 U	< 25 U	< 25 U	< 25 U	< 25 U
Carbon disulfide	800	2,300	- -	- -	250,000	550,000	*2,100*	3,100	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon tetrachloride	5	5	38	- -	370	2,400	*7.7*	18	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	1,100,000	1,100,000	*190*	560	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	220,000	300,000	*49*	410	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chlorobenzene	100	100	25	- -	210,000	470,000	*940*	1,400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromochloromethane	80	80	- -	- -	14,000	110,000	*23*	130	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroethane	430	1,700	1,100	- -	5,700,000	5,700,000	*15,000*	22,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroform (Trichloromethane)	80	80	350	- -	28,000	180,000	*14*	32	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane (Methyl chloride)	260	1,100	- -	- -	8,600	45,000	*380*	560	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Cyclohexane	- -	- -	- -	- -	- -	- -	*2,000*	8,100	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	220	1,200	*0.00045*	0.021	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	2,400	15,000	*3.8*	8.9	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	600	600	13	- -	160,000	160,000	*11,000*	16,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	6.6	19	28	- -	18,000	41,000	*75*	110	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	75	75	17	- -	16,000	74,000	*170*	400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	880	2,500	740	- -	1,000,000	2,300,000	*130*	300	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	5	5	360	- -	9,600	59,000	*41*	97	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	7	7	130	- -	200	1,300	*330*	480	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	70	70	620	- -	93,000	210,000	*95*	140	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	100	100	1,500	- -	85,000	200,000	*390*	580	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	5	5	1,500	- -	220,000	1,400,000	*8,400*	12,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dichloropropane	5	5	230	- -	16,000	36,000	*74*	110	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene*	74	74	18	**700**	110,000	170,000	*74*	170	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Isopropyl benzene	800	2,300	28	- -	56,000	56,000	*15*	36	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Hexanone	1,000	2,900	- -	- -	4,200,000	8,700,000	*20,000*	29,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	20,000,000	20,000,000	*330,000*	330,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Methyl tert butyl ether (MTBE)*	40	40	7,100	**690**	47,000,000	47,000,000	*7,400*	17,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Styrene	100	100	80	- -	170,000	310,000	*960*	2,300	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	12,000	77,000	*71*	170	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	5	5	60	- -	25,000	170,000	*130*	130	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Toluene*	790	790	270	**1,000**	530,000	530,000	*41,000*	59,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	70	70	99	- -	300,000	300,000	*110*	160	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1,1-Trichloroethane	200	200	89	- -	660,000	1,300,000	*14,000*	19,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	5	5	330	- -	17,000	110,000	*14*	20	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	5	5	200	- -	2,200	4,900	*10*	10	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	170,000	170,000	*2,700*	26,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	2	2	13	- -	1,100	13,000	*2.1*	18	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
o-Xylene	NA	NA	NA	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Total Xylenes*	280	280	49	**10,000**	190,000	190,000	*2,000*	3,000	ug/L	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	INJ-01-17 10/14/21 INJ-01-17_GW-10142021	INJ-02-18 10/14/21 INJ-02-18_GW-10142021	MW-01-17 10/15/21 MW-01-17_GW-10152021	MW-03-17 10/14/21 MW-03-17_GW-10142021	MW-04-17 10/14/21 MW-04-17_GW-10142021
Volatile Organics-SIM														
1,4-Dioxane	7.2	350	280	- -	- -	- -	*56,000*	130,000	ug/L	NA	NA	2	NA	NA
Inorganics														
Antimony	6	6	130	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA	< 5 U	< 5 U
Arsenic	10	10	10	- -	- -	- -	- -	- -	ug/L	4	4	NA	18	8
Barium	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	278	270	NA	394	297
Beryllium	4	4	6.7	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	NA	< 1 U	< 1 U
Cadmium	5	5	2.5	- -	- -	- -	- -	- -	ug/L	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U
Calcium	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	142,000	143 ,000	NA	146,000	144,000
Chromium	100	100	11	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA	< 5 U	< 5 U
Cobalt	40	100	100	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA	< 5 U	< 5 U
Copper*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	< 5 U	40	NA	< 5 U	< 5 U
Iron*	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	**19,700**	**21,400**	NA	**8,630**	**19,100**
Lead	4	4	14	- -	- -	- -	- -	- -	ug/L	< 3 U	< 3 U	NA	< 3 U	< 3 U
Magnesium	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	33,900	33,900	NA	34,700	34,400
Manganese*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	640	623	NA	1,000	698
Mercury	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	< 0.2 U	< 0.2 U	NA	< 0.2 U	< 0.2 U
Nickel	100	100	73	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA	< 5 U	< 5 U
Selenium	50	50	5	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA	< 5 U	< 5 U
Silver	34	98	0.2	- -	- -	- -	- -	- -	ug/L	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U
Thallium	2	2	3.7	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	NA	< 2 U	< 2 U
Vanadium	4.5	62	27	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA	< 5 U	< 5 U
Zinc	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	18	< 5 U	NA	< 5 U	< 5 U
Inorganics-Filtered														
Antimony (dissolved)	6	6	130	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Arsenic (dissolved)	10	10	10	- -	- -	- -	- -	- -	ug/L	NA	3	NA	NA	NA
Barium (dissolved)	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA	268	NA	NA	NA
Beryllium (dissolved)	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA	< 1 U	NA	NA	NA
Cadmium (dissolved)	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA	< 0.5 U	NA	NA	NA
Calcium (dissolved)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA
Chromium Total (dissolved)	100	100	11	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Cobalt (dissolved)	40	100	100	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Copper (dissolved)*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Iron (dissolved)	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA
Lead (dissolved)	4	4	14	- -	- -	- -	- -	- -	ug/L	NA	< 3 U	NA	NA	NA
Magnesium (dissolved)	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA
Manganese (dissolved)*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA	650	NA	NA	NA
Mercury (dissolved)	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA	< 0.2 U	NA	NA	NA
Nickel (dissolved)	100	100	73	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Selenium (dissolved)	50	50	5	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Silver (dissolved)	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA	< 0.5 U	NA	NA	NA
Thallium (dissolved)	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA	< 2 U	NA	NA	NA
Vanadium (dissolved)	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Zinc (dissolved)	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA	< 5 U	NA	NA	NA
Miscellaneous														
Alkalinity, total (as CaCO3)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	396,000	392,000	NA	412,000	402,000
Hardness	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	380,000	365,000	NA	435,000	370,000
Total dissolved solids (TDS)	500,000	500,000	500,000	- -	- -	- -	- -	- -	ug/L	1,970,000	1,950,000	NA	1,920,000	1,960,000
Total suspended solids (TSS)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	41,000	40,000	NA	17,000	40,000

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: / Date Collected: / Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	MW-40-99 10/15/21 MW-40-99_GW-10152021	MWM16-02 10/12/21 MWM16-02_101221	MWM16-30 10/12/21 MWM16-30_101221	MWM16-31 10/12/21 MWM16-31_101221	MWM16-37 10/13/21 MWM16-37_GW-10132021	MWM2-23 10/13/21 MWM2-23_GW-10132021
Field Parameters															
pH	6.5-8.5	6.5-8.5	6.5-9.0	- -	- -	- -	- -	- -	SU	7.04	7.12	6.90	7.22	7.26	6.88
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	NTU	45.8	2.28	1.75	2.59	3.67	0.80
PCBs															
Aroclor-1016 (PCB-1016)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Aroclor-1221 (PCB-1221)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Aroclor-1232 (PCB-1232)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Aroclor-1242 (PCB-1242)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Aroclor-1248 (PCB-1248)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Aroclor-1254 (PCB-1254)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Aroclor-1260 (PCB-1260)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Total PCBs	0.5	0.5	0.2	- -	45	45	- -	- -	ug/L	< 0.1 U [< 0.1 U]	NA	NA	NA	NA [NA]	NA [NA]
Volatile Organics															
Acetone	730	2,100	1,700	- -	1,000,000,000	1,000,000,000	*40,000,000*	40,000,000	ug/L	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U [< 50 U]
Benzene	5	5	200	- -	5,600	35,000	*28*	66	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Bromodichloromethane	80	80	- -	- -	4,800	37,000	*34*	73	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Bromoform	80	80	- -	- -	470,000	3,100,000	*2,700*	6,200	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Bromomethane (Methyl bromide)	10	29	5	- -	4,000	9,000	*55*	80	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	240,000,000	240,000,000	*4,300,000*	4,300,000	ug/L	< 25 U [< 25 U]	< 25 U	< 25 U	< 25 U	< 25 U [< 25 U]	< 25 U [< 25 U]
Carbon disulfide	800	2,300	- -	- -	250,000	550,000	*2,100*	3,100	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
Carbon tetrachloride	5	5	38	- -	370	2,400	*7.7*	18	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	1,100,000	1,100,000	*190*	560	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	220,000	300,000	*49*	410	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
Chlorobenzene	100	100	25	- -	210,000	470,000	*940*	1,400	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Dibromochloromethane	80	80	- -	- -	14,000	110,000	*23*	130	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
Chloroethane	430	1,700	1,100	- -	5,700,000	5,700,000	*15,000*	22,000	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
Chloroform (Trichloromethane)	80	80	350	- -	28,000	180,000	*14*	32	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Chloromethane (Methyl chloride)	260	1,100	- -	- -	8,600	45,000	*380*	560	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
Cyclohexane	- -	- -	- -	- -	- -	- -	*2,000*	8,100	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	220	1,200	*0.00045*	0.021	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	2,400	15,000	*3.8*	8.9	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,2-Dichlorobenzene	600	600	13	- -	160,000	160,000	*11,000*	16,000	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,3-Dichlorobenzene	6.6	19	28	- -	18,000	41,000	*75*	110	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,4-Dichlorobenzene	75	75	17	- -	16,000	74,000	*170*	400	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1-Dichloroethane	880	2,500	740	- -	1,000,000	2,300,000	*130*	300	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	18 [28]
1,2-Dichloroethane	5	5	360	- -	9,600	59,000	*41*	97	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1-Dichloroethene	7	7	130	- -	200	1,300	*330*	480	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
cis-1,2-Dichloroethene	70	70	620	- -	93,000	210,000	*95*	140	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	5 [9]
trans-1,2-Dichloroethene	100	100	1,500	- -	85,000	200,000	*390*	580	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Methylene chloride	5	5	1,500	- -	220,000	1,400,000	*8,400*	12,000	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
1,2-Dichloropropane	5	5	230	- -	16,000	36,000	*74*	110	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Ethylbenzene*	74	74	18	**700**	110,000	170,000	*74*	170	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Isopropyl benzene	800	2,300	28	- -	56,000	56,000	*15*	36	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U [< 10 U]	< 10 U	< 10 U	< 10 U	< 10 U [< 10 U]	< 10 U [< 10 U]
2-Hexanone	1,000	2,900	- -	- -	4,200,000	8,700,000	*20,000*	29,000	ug/L	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U [< 50 U]
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	20,000,000	20,000,000	*330,000*	330,000	ug/L	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U [< 50 U]
Methyl tert butyl ether (MTBE)*	40	40	7,100	**690**	47,000,000	47,000,000	*7,400*	17,000	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
Styrene	100	100	80	- -	170,000	310,000	*960*	2,300	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	12,000	77,000	*71*	170	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Tetrachloroethene	5	5	60	- -	25,000	170,000	*130*	130	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	27 [39]
Toluene*	790	790	270	**1,000**	530,000	530,000	*41,000*	59,000	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,2,4-Trichlorobenzene	70	70	99	- -	300,000	300,000	*110*	160	ug/L	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U [< 5 U]
1,1,1-Trichloroethane	200	200	89	- -	660,000	1,300,000	*14,000*	19,000	ug/L	< 1 U [< 1 U]	< 1 U	6	< 1 U	< 1 U [< 1 U]	2 [2]
1,1,2-Trichloroethane	5	5	330	- -	17,000	110,000	*14*	20	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Trichloroethene	5	5	200	- -	2,200	4,900	*10*	10	ug/L	< 1 U [< 1 U]	< 1 U	*12*	< 1 U	< 1 U [< 1 U]	5 [7]
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	170,000	170,000	*2,700*	26,000	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Vinyl chloride	2	2	13	- -	1,100	13,000	*2.1*	18	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	2 [2]	*3 [5]*
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U [< 2 U]	< 2 U	< 2 U	< 2 U	< 2 U [< 2 U]	< 2 U [< 2 U]
o-Xylene	NA	NA	NA	- -	- -	- -	- -	- -	ug/L	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Total Xylenes*	280	280	49	**10,000**	190,000	190,000	*2,000*	3,000	ug/L	< 2 U [< 2 U]	< 2 U	< 2 U	< 2 U	< 2 U [< 2 U]	< 2 U [< 2 U]

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	MW-40-99 10/15/21 MW-40-99_GW-10152021	MWM16-02 10/12/21 MWM16-02_101221	MWM16-30 10/12/21 MWM16-30_101221	MWM16-31 10/12/21 MWM16-31_101221	MWM16-37 10/13/21 MWM16-37_GW-10132021	MWM2-23 10/13/21 MWM2-23_GW-10132021
Volatile Organics-SIM															
1,4-Dioxane	7.2	350	280	- -	- -	- -	*56,000*	130,000	ug/L	1 [1]	NA	NA	NA	NA [NA]	NA [NA]
Inorganics															
Antimony	6	6	130	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Arsenic	10	10	10	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Barium	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Beryllium	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Cadmium	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Calcium	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Chromium	100	100	11	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Cobalt	40	100	100	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Copper*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Iron*	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Lead	4	4	14	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Magnesium	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Manganese*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Mercury	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Nickel	100	100	73	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Selenium	50	50	5	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Silver	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Thallium	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Vanadium	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Zinc	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Inorganics-Filtered															
Antimony (dissolved)	6	6	130	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Arsenic (dissolved)	10	10	10	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Barium (dissolved)	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Beryllium (dissolved)	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Cadmium (dissolved)	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Calcium (dissolved)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Chromium Total (dissolved)	100	100	11	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Cobalt (dissolved)	40	100	100	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Copper (dissolved)*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Iron (dissolved)	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Lead (dissolved)	4	4	14	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Magnesium (dissolved)	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Manganese (dissolved)*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Mercury (dissolved)	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Nickel (dissolved)	100	100	73	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Selenium (dissolved)	50	50	5	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Silver (dissolved)	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Thallium (dissolved)	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Vanadium (dissolved)	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Zinc (dissolved)	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Miscellaneous															
Alkalinity, total (as CaCO3)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Hardness	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Total dissolved solids (TDS)	500,000	500,000	500,000	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]
Total suspended solids (TSS)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA [NA]	NA	NA	NA	NA [NA]	NA [NA]

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	MWM2-28 10/13/21 MWM2-28_101321	MWM31-02 10/13/21 MWM31-02_101321	MWM32-01 10/13/21 MWM32-01_GW-10132021	MWOS-01 10/12/21 MWOS-01_101221	MWOS-02 10/12/21 MWOS-02_101221	MWOS-03 10/13/21 MWOS-03_101321
Field Parameters															
pH	6.5-8.5	6.5-8.5	6.5-9.0	- -	- -	- -	- -	- -	SU	7.33	7.16	6.97	7.03	7.17	6.73
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	NTU	1.26	1.78	3.95	14.3	4.18	1.39
PCBs															
Aroclor-1016 (PCB-1016)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Aroclor-1221 (PCB-1221)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Aroclor-1232 (PCB-1232)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Aroclor-1242 (PCB-1242)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Aroclor-1248 (PCB-1248)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Aroclor-1254 (PCB-1254)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Aroclor-1260 (PCB-1260)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Total PCBs	0.5	0.5	0.2	- -	45	45	- -	- -	ug/L	NA	NA	NA	NA	NA	< 0.1 U
Volatile Organics															
Acetone	730	2,100	1,700	- -	1,000,000,000	1,000,000,000	*40,000,000*	40,000,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	NA	NA
Benzene	5	5	200	- -	5,600	35,000	*28*	66	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Bromodichloromethane	80	80	- -	- -	4,800	37,000	*34*	73	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Bromoform	80	80	- -	- -	470,000	3,100,000	*2,700*	6,200	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Bromomethane (Methyl bromide)	10	29	5	- -	4,000	9,000	*55*	80	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	240,000,000	240,000,000	*4,300,000*	4,300,000	ug/L	< 25 U	< 25 U	< 25 U	< 25 U	NA	NA
Carbon disulfide	800	2,300	- -	- -	250,000	550,000	*2,100*	3,100	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
Carbon tetrachloride	5	5	38	- -	370	2,400	*7.7*	18	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	1,100,000	1,100,000	*190*	560	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	220,000	300,000	*49*	410	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
Chlorobenzene	100	100	25	- -	210,000	470,000	*940*	1,400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Dibromochloromethane	80	80	- -	- -	14,000	110,000	*23*	130	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
Chloroethane	430	1,700	1,100	- -	5,700,000	5,700,000	*15,000*	22,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
Chloroform (Trichloromethane)	80	80	350	- -	28,000	180,000	*14*	32	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Chloromethane (Methyl chloride)	260	1,100	- -	- -	8,600	45,000	*380*	560	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
Cyclohexane	- -	- -	- -	- -	- -	- -	*2,000*	8,100	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	220	1,200	*0.00045*	0.021	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	2,400	15,000	*3.8*	8.9	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,2-Dichlorobenzene	600	600	13	- -	160,000	160,000	*11,000*	16,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,3-Dichlorobenzene	6.6	19	28	- -	18,000	41,000	*75*	110	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,4-Dichlorobenzene	75	75	17	- -	16,000	74,000	*170*	400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,1-Dichloroethane	880	2,500	740	- -	1,000,000	2,300,000	*130*	300	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,2-Dichloroethane	5	5	360	- -	9,600	59,000	*41*	97	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,1-Dichloroethene	7	7	130	- -	200	1,300	*330*	480	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
cis-1,2-Dichloroethene	70	70	620	- -	93,000	210,000	*95*	140	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
trans-1,2-Dichloroethene	100	100	1,500	- -	85,000	200,000	*390*	580	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Methylene chloride	5	5	1,500	- -	220,000	1,400,000	*8,400*	12,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
1,2-Dichloropropane	5	5	230	- -	16,000	36,000	*74*	110	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Ethylbenzene*	74	74	18	**700**	110,000	170,000	*74*	170	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Isopropyl benzene	800	2,300	28	- -	56,000	56,000	*15*	36	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA
2-Hexanone	1,000	2,900	- -	- -	4,200,000	8,700,000	*20,000*	29,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	NA	NA
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	20,000,000	20,000,000	*330,000*	330,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	NA	NA
Methyl tert butyl ether (MTBE)*	40	40	7,100	**690**	47,000,000	47,000,000	*7,400*	17,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
Styrene	100	100	80	- -	170,000	310,000	*960*	2,300	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	12,000	77,000	*71*	170	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Tetrachloroethene	5	5	60	- -	25,000	170,000	*130*	130	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Toluene*	790	790	270	**1,000**	530,000	530,000	*41,000*	59,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,2,4-Trichlorobenzene	70	70	99	- -	300,000	300,000	*110*	160	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA
1,1,1-Trichloroethane	200	200	89	- -	660,000	1,300,000	*14,000*	19,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
1,1,2-Trichloroethane	5	5	330	- -	17,000	110,000	*14*	20	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Trichloroethene	5	5	200	- -	2,200	4,900	*10*	10	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	170,000	170,000	*2,700*	26,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Vinyl chloride	2	2	13	- -	1,100	13,000	*2.1*	18	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	< 2 U	< 2 U	NA	NA
o-Xylene	NA	NA	NA	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA
Total Xylenes*	280	280	49	**10,000**	190,000	190,000	*2,000*	3,000	ug/L	< 2 U	< 2 U	< 2 U	< 2 U	NA	NA

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	MWM2-28 10/13/21 MWM2-28_101321	MWM31-02 10/13/21 MWM31-02_101321	MWM32-01 10/13/21 MWM32-01_GW-10132021	MWOS-01 10/12/21 MWOS-01_101221	MWOS-02 10/12/21 MWOS-02_101221	MWOS-03 10/13/21 MWOS-03_101321
Volatile Organics-SIM															
1,4-Dioxane	7.2	350	280	- -	- -	- -	*56,000*	130,000	ug/L	NA	NA	NA	NA	NA	NA
Inorganics															
Antimony	6	6	130	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Arsenic	10	10	10	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Barium	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Beryllium	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Cadmium	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Calcium	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Chromium	100	100	11	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Cobalt	40	100	100	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Copper*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Iron*	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Lead	4	4	14	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Magnesium	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Manganese*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA	NA	NA	78	530	NA
Mercury	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA	NA	NA	NA	NA	NA
Nickel	100	100	73	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Selenium	50	50	5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Silver	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Thallium	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Vanadium	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 5 U
Zinc	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Inorganics-Filtered															
Antimony (dissolved)	6	6	130	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	10	10	10	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Barium (dissolved)	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Beryllium (dissolved)	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Calcium (dissolved)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Chromium Total (dissolved)	100	100	11	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	40	100	100	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Copper (dissolved)*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Iron (dissolved)	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Lead (dissolved)	4	4	14	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Magnesium (dissolved)	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Manganese (dissolved)*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA	NA	NA	67	337	NA
Mercury (dissolved)	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	100	100	73	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	50	50	5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Silver (dissolved)	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Thallium (dissolved)	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	< 5 U
Zinc (dissolved)	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Miscellaneous															
Alkalinity, total (as CaCO3)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Hardness	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)	500,000	500,000	500,000	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Total suspended solids (TSS)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	MWW01-SEN03 10/12/21 MWW01-SEN03_GW-1012202	MWW01-SEN04 10/15/21 MWW01-SEN04_GW-1015202	MWW10-03 10/15/21 MWW10-03_GW-10152021	MWW1-04 10/13/21 MWW1-04_GW-10132021	MWW10-SEN02 10/12/2021 and 10/15/2021 MWW10-SEN02_GW-1012202	MWW1-15 10/15/21 MWW1-15_10152021
Field Parameters															
pH	6.5-8.5	6.5-8.5	6.5-9.0	- -	- -	- -	- -	- -	SU	7.23	7.18	6.99	9.61	6.90	7.57
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	NTU	17.7	40	14	1.80	1.97	12.50
PCBs															
Aroclor-1016 (PCB-1016)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1221 (PCB-1221)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1232 (PCB-1232)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1242 (PCB-1242)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1248 (PCB-1248)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	0.1	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1254 (PCB-1254)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1260 (PCB-1260)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Total PCBs	0.5	0.5	0.2	- -	45	45	- -	- -	ug/L	< 0.1 U	0.1	< 0.1 U [< 0.1 U]	< 0.1 U	< 0.1 U	< 0.1 U
Volatile Organics															
Acetone	730	2,100	1,700	- -	1,000,000,000	1,000,000,000	*40,000,000*	40,000,000	ug/L	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U
Benzene	5	5	200	- -	5,600	35,000	*28*	66	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Bromodichloromethane	80	80	- -	- -	4,800	37,000	*34*	73	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Bromoform	80	80	- -	- -	470,000	3,100,000	*2,700*	6,200	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Bromomethane (Methyl bromide)	10	29	5	- -	4,000	9,000	*55*	80	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	240,000,000	240,000,000	*4,300,000*	4,300,000	ug/L	< 25 U	< 25 U	< 25 U [< 25 U]	< 25 U	< 25 U	< 25 U
Carbon disulfide	800	2,300	- -	- -	250,000	550,000	*2,100*	3,100	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
Carbon tetrachloride	5	5	38	- -	370	2,400	*7.7*	18	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	1,100,000	1,100,000	*190*	560	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	220,000	300,000	*49*	410	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
Chlorobenzene	100	100	25	- -	210,000	470,000	*940*	1,400	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Dibromochloromethane	80	80	- -	- -	14,000	110,000	*23*	130	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
Chloroethane	430	1,700	1,100	- -	5,700,000	5,700,000	*15,000*	22,000	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
Chloroform (Trichloromethane)	80	80	350	- -	28,000	180,000	*14*	32	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Chloromethane (Methyl chloride)	260	1,100	- -	- -	8,600	45,000	*380*	560	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
Cyclohexane	- -	- -	- -	- -	- -	- -	*2,000*	8,100	ug/L	2	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	220	1,200	*0.00045*	0.021	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	2,400	15,000	*3.8*	8.9	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	600	600	13	- -	160,000	160,000	*11,000*	16,000	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	6.6	19	28	- -	18,000	41,000	*75*	110	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	75	75	17	- -	16,000	74,000	*170*	400	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	880	2,500	740	- -	1,000,000	2,300,000	*130*	300	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	5	5	360	- -	9,600	59,000	*41*	97	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	7	7	130	- -	200	1,300	*330*	480	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	70	70	620	- -	93,000	210,000	*95*	140	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	100	100	1,500	- -	85,000	200,000	*390*	580	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Methylene chloride	5	5	1,500	- -	220,000	1,400,000	*8,400*	12,000	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
1,2-Dichloropropane	5	5	230	- -	16,000	36,000	*74*	110	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Ethylbenzene*	74	74	18	**700**	110,000	170,000	*74*	170	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Isopropyl benzene	800	2,300	28	- -	56,000	56,000	*15*	36	ug/L	< 1 U	< 1 U	< 5 U [< 5 U]	< 1 U	< 1 U	< 1 U
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U	< 10 U	< 10 U [< 10 U]	< 10 U	< 10 U	< 10 U
2-Hexanone	1,000	2,900	- -	- -	4,200,000	8,700,000	*20,000*	29,000	ug/L	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	1	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	20,000,000	20,000,000	*330,000*	330,000	ug/L	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U
Methyl tert butyl ether (MTBE)*	40	40	7,100	**690**	47,000,000	47,000,000	*7,400*	17,000	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
Styrene	100	100	80	- -	170,000	310,000	*960*	2,300	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	12,000	77,000	*71*	170	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Tetrachloroethene	5	5	60	- -	25,000	170,000	*130*	130	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Toluene*	790	790	270	**1,000**	530,000	530,000	*41,000*	59,000	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	70	70	99	- -	300,000	300,000	*110*	160	ug/L	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U	< 5 U	< 5 U
1,1,1-Trichloroethane	200	200	89	- -	660,000	1,300,000	*14,000*	19,000	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	5	5	330	- -	17,000	110,000	*14*	20	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Trichloroethene	5	5	200	- -	2,200	4,900	*10*	10	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	170,000	170,000	*2,700*	26,000	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Vinyl chloride	2	2	13	- -	1,100	13,000	*2.1*	18	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	< 2 U [< 2 U]	< 2 U	< 2 U	< 2 U
o-Xylene	NA	NA	NA	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Total Xylenes*	280	280	49	**10,000**	190,000	190,000	*2,000*	3,000	ug/L	< 2 U	< 2 U	< 2 U [< 2 U]	< 2 U	< 2 U	< 2 U

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: / Date Collected: / Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	MWW01-SEN03 10/12/21 WW01-SEN03_GW-1012202	MWW01-SEN04 10/15/21 WW01-SEN04_GW-1015202	MWW10-03 10/15/21 MWW10-03_GW-10152021	MWW1-04 10/13/21 MWW1-04_GW-10132021	MWW10-SEN02 10/12/2021 and 10/15/2021 WW10-SEN02_GW-1012202	MWW1-15 10/15/21 MWW1-15_10152021
Volatile Organics-SIM															
1,4-Dioxane	7.2	350	280	- -	- -	- -	*56,000*	130,000	ug/L	22	NA	NA [NA]	< 1 U	NA	NA
Inorganics															
Antimony	6	6	130	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA [NA]	< 5 U	< 5 U	< 5 U
Arsenic	10	10	10	- -	- -	- -	- -	- -	ug/L	5	6	NA [NA]	NA	< 2 U	3
Barium	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	111	164	NA [NA]	NA	73	209
Beryllium	4	4	6.7	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	NA [NA]	NA	< 1 U	< 1 U
Cadmium	5	5	2.5	- -	- -	- -	- -	- -	ug/L	< 0.5 U	< 0.5 U	NA [NA]	NA	< 0.5 U	< 0.5 U
Calcium	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	45,900	100,000	NA [NA]	56,000	129,000	102,000
Chromium	100	100	11	- -	- -	- -	- -	- -	ug/L	8	< 5 U	NA [NA]	NA	6	< 5 U
Cobalt	40	100	100	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA [NA]	NA	< 5 U	< 5 U
Copper*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	10	< 5 U	NA [NA]	NA	< 5 U	< 5 U
Iron*	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	**11,400**	**17,000**	NA [NA]	30	100	**11,200**
Lead	4	4	14	- -	- -	- -	- -	- -	ug/L	< 3 U	4	< 3 U [< 3 U]	NA	< 3 U	< 3 U
Magnesium	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	15,300	28,800	NA [NA]	2,170	35,300	47,700
Manganese*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	260	686	61 [59]	NA	< 5 U	305
Mercury	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	0.3	< 0.2 U	NA [NA]	NA	0.4	< 0.2 U
Nickel	100	100	73	- -	- -	- -	- -	- -	ug/L	8	< 5 U	NA [NA]	NA	9	< 5 U
Selenium	50	50	5	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA [NA]	NA	< 5 U	< 5 U
Silver	34	98	0.2	- -	- -	- -	- -	- -	ug/L	< 0.5 U	< 0.5 U	NA [NA]	NA	< 0.5 U	< 0.5 U
Thallium	2	2	3.7	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	NA [NA]	NA	< 2 U	< 2 U
Vanadium	4.5	62	27	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	NA [NA]	< 5 U	< 5 U	< 5 U
Zinc	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	7	< 5 U	NA [NA]	NA	< 5 U	< 5 U
Inorganics-Filtered															
Antimony (dissolved)	6	6	130	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Arsenic (dissolved)	10	10	10	- -	- -	- -	- -	- -	ug/L	4	NA	NA [NA]	NA	NA	NA
Barium (dissolved)	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	101	NA	NA [NA]	NA	NA	NA
Beryllium (dissolved)	4	4	6.7	- -	- -	- -	- -	- -	ug/L	< 1 U	NA	NA [NA]	NA	NA	NA
Cadmium (dissolved)	5	5	2.5	- -	- -	- -	- -	- -	ug/L	< 0.5 U	NA	NA [NA]	NA	NA	NA
Calcium (dissolved)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA [NA]	NA	NA	NA
Chromium Total (dissolved)	100	100	11	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Cobalt (dissolved)	40	100	100	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Copper (dissolved)*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Iron (dissolved)	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA	NA	NA [NA]	NA	NA	NA
Lead (dissolved)	4	4	14	- -	- -	- -	- -	- -	ug/L	< 3 U	NA	NA [NA]	NA	NA	NA
Magnesium (dissolved)	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA [NA]	NA	NA	NA
Manganese (dissolved)*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	271	NA	NA [NA]	NA	NA	NA
Mercury (dissolved)	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	< 0.2 U	NA	NA [NA]	NA	NA	NA
Nickel (dissolved)	100	100	73	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Selenium (dissolved)	50	50	5	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Silver (dissolved)	34	98	0.2	- -	- -	- -	- -	- -	ug/L	< 0.5 U	NA	NA [NA]	NA	NA	NA
Thallium (dissolved)	2	2	3.7	- -	- -	- -	- -	- -	ug/L	< 2 U	NA	NA [NA]	NA	NA	NA
Vanadium (dissolved)	4.5	62	27	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Zinc (dissolved)	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	NA [NA]	NA	NA	NA
Miscellaneous															
Alkalinity, total (as CaCO3)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	454,000	424,000	NA [NA]	90,000	678,000	430,000
Hardness	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	128,000	246	NA [NA]	145,000	389,000	250,000
Total dissolved solids (TDS)	500,000	500,000	500,000	- -	- -	- -	- -	- -	ug/L	1,010,000	1,320,000	NA [NA]	328,000	934,000	1,110,000
Total suspended solids (TSS)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	42,000	35,000	NA [NA]	< 3,000 U	108,000	24,000

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	TW-09-01 10/15/21 TW-09-01_GW-10152021	TW-10-02 12/14/21 TW-10-02_GW-121421	TW-MD-01 10/14/21 TW-MD-01_GW-10142021	TW-MD-02 10/14/21 TW-MD-02_GW-10142021	TW-MD-03 10/14/21 TW-MD-03_GW-10142021	TW-MD-04 10/14/21 TW-MD-04_GW-10142021
Field Parameters															
pH	6.5-8.5	6.5-8.5	6.5-9.0	- -	- -	- -	- -	- -	SU	7.09	6.61	6.64	6.95	7.05	7.15
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	NTU	2.20	2.62	0.02	3.02	3.45	0.02
PCBs															
Aroclor-1016 (PCB-1016)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1221 (PCB-1221)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1232 (PCB-1232)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1242 (PCB-1242)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1248 (PCB-1248)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1254 (PCB-1254)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1260 (PCB-1260)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Total PCBs	0.5	0.5	0.2	- -	45	45	- -	- -	ug/L	< 0.1 U	NA	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Volatile Organics															
Acetone	730	2,100	1,700	- -	1,000,000,000	1,000,000,000	*40,000,000*	40,000,000	ug/L	< 50 U	NA	< 50 U	< 50 U	< 50 U	< 50 U
Benzene	5	5	200	- -	5,600	35,000	*28*	66	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	80	80	- -	- -	4,800	37,000	*34*	73	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	80	80	- -	- -	470,000	3,100,000	*2,700*	6,200	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane (Methyl bromide)	10	29	5	- -	4,000	9,000	*55*	80	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	240,000,000	240,000,000	*4,300,000*	4,300,000	ug/L	< 25 U	NA	< 25 U	< 25 U	< 25 U	< 25 U
Carbon disulfide	800	2,300	- -	- -	250,000	550,000	*2,100*	3,100	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Carbon tetrachloride	5	5	38	- -	370	2,400	*7.7*	18	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	1,100,000	1,100,000	*190*	560	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	220,000	300,000	*49*	410	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Chlorobenzene	100	100	25	- -	210,000	470,000	*940*	1,400	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Dibromochloromethane	80	80	- -	- -	14,000	110,000	*23*	130	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Chloroethane	430	1,700	1,100	- -	5,700,000	5,700,000	*15,000*	22,000	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Chloroform (Trichloromethane)	80	80	350	- -	28,000	180,000	*14*	32	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane (Methyl chloride)	260	1,100	- -	- -	8,600	45,000	*380*	560	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Cyclohexane	- -	- -	- -	- -	- -	- -	*2,000*	8,100	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	220	1,200	*0.00045*	0.021	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	2,400	15,000	*3.8*	8.9	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	600	600	13	- -	160,000	160,000	*11,000*	16,000	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	6.6	19	28	- -	18,000	41,000	*75*	110	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	75	75	17	- -	16,000	74,000	*170*	400	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	880	2,500	740	- -	1,000,000	2,300,000	*130*	300	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	5	5	360	- -	9,600	59,000	*41*	97	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	7	7	130	- -	200	1,300	*330*	480	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	70	70	620	- -	93,000	210,000	*95*	140	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	100	100	1,500	- -	85,000	200,000	*390*	580	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Methylene chloride	5	5	1,500	- -	220,000	1,400,000	*8,400*	12,000	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dichloropropane	5	5	230	- -	16,000	36,000	*74*	110	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene*	74	74	18	**700**	110,000	170,000	*74*	170	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Isopropyl benzene	800	2,300	28	- -	56,000	56,000	*15*	36	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U	NA	< 10 U	< 10 U	< 10 U	< 10 U
2-Hexanone	1,000	2,900	- -	- -	4,200,000	8,700,000	*20,000*	29,000	ug/L	< 50 U	NA	< 50 U	< 50 U	< 50 U	< 50 U
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	20,000,000	20,000,000	*330,000*	330,000	ug/L	< 50 U	NA	< 50 U	< 50 U	< 50 U	< 50 U
Methyl tert butyl ether (MTBE)*	40	40	7,100	**690**	47,000,000	47,000,000	*7,400*	17,000	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Styrene	100	100	80	- -	170,000	310,000	*960*	2,300	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	12,000	77,000	*71*	170	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	5	5	60	- -	25,000	170,000	*130*	130	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Toluene*	790	790	270	**1,000**	530,000	530,000	*41,000*	59,000	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	70	70	99	- -	300,000	300,000	*110*	160	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
1,1,1-Trichloroethane	200	200	89	- -	660,000	1,300,000	*14,000*	19,000	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	5	5	330	- -	17,000	110,000	*14*	20	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	5	5	200	- -	2,200	4,900	*10*	10	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	170,000	170,000	*2,700*	26,000	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	2	2	13	- -	1,100	13,000	*2.1*	18	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U	NA	< 2 U	< 2 U	< 2 U	< 2 U
o-Xylene	NA	NA	NA	- -	- -	- -	- -	- -	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Total Xylenes*	280	280	49	**10,000**	190,000	190,000	*2,000*	3,000	ug/L	< 2 U	NA	< 2 U	< 2 U	< 2 U	< 2 U

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: / Date Collected: / Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	TW-09-01 10/15/21 TW-09-01_GW-10152021	TW-10-02 12/14/21 TW-10-02_GW-121421	TW-MD-01 10/14/21 TW-MD-01_GW-10142021	TW-MD-02 10/14/21 TW-MD-02_GW-10142021	TW-MD-03 10/14/21 TW-MD-03_GW-10142021	TW-MD-04 10/14/21 TW-MD-04_GW-10142021
Volatile Organics-SIM															
1,4-Dioxane	7.2	350	280	- -	- -	- -	*56,000*	130,000	ug/L	NA	93	< 1 U	NA	NA	NA
Inorganics										NA					
Antimony	6	6	130	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Arsenic	10	10	10	- -	- -	- -	- -	- -	ug/L	25	NA	< 2 U	5	< 2 U	4
Barium	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	510	NA	127	231	141	138
Beryllium	4	4	6.7	- -	- -	- -	- -	- -	ug/L	< 1 U	NA	< 1 U	< 1 U	< 1 U	< 1 U
Cadmium	5	5	2.5	- -	- -	- -	- -	- -	ug/L	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Calcium	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	149,000	NA	160,000	198,000	115,000	85,300
Chromium	100	100	11	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Cobalt	40	100	100	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Copper*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Iron*	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	5,050	NA	1,260	**11,300**	**8,480**	**11,700**
Lead	4	4	14	- -	- -	- -	- -	- -	ug/L	< 3 U	NA	< 3 U	< 3 U	< 3 U	< 3 U
Magnesium	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	30,600	NA	34,700	40,400	27,600	22,300
Manganese*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	727	NA	725	912	741	462
Mercury	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	< 0.2 U	NA	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	100	100	73	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	12	10	< 5 U	< 5 U
Selenium	50	50	5	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Silver	34	98	0.2	- -	- -	- -	- -	- -	ug/L	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Thallium	2	2	3.7	- -	- -	- -	- -	- -	ug/L	< 2 U	NA	< 2 U	< 2 U	< 2 U	< 2 U
Vanadium	4.5	62	27	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	< 5 U	NA	8	7	6	< 5 U
Inorganics-Filtered															
Antimony (dissolved)	6	6	130	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Arsenic (dissolved)	10	10	10	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Barium (dissolved)	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Beryllium (dissolved)	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Cadmium (dissolved)	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Calcium (dissolved)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Chromium Total (dissolved)	100	100	11	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Cobalt (dissolved)	40	100	100	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Copper (dissolved)*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Iron (dissolved)	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Lead (dissolved)	4	4	14	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Magnesium (dissolved)	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Manganese (dissolved)*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Mercury (dissolved)	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA	NA	NA	NA	NA	NA
Nickel (dissolved)	100	100	73	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Selenium (dissolved)	50	50	5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Silver (dissolved)	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Thallium (dissolved)	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Vanadium (dissolved)	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Zinc (dissolved)	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA	NA	NA	NA	NA	NA
Miscellaneous															
Alkalinity, total (as CaCO3)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	400,000	NA	430,000	428,000	474,000	512,000
Hardness	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	364,000	NA	438,000	547,000	308,000	229,000
Total dissolved solids (TDS)	500,000	500,000	500,000	- -	- -	- -	- -	- -	ug/L	914,000	NA	1,300,000	1,270,000	840,000	788,000
Total suspended solids (TSS)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	13,000	NA	< 3,000 U	21,000	19,000	25,000

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	TW-MD-05 10/14/21 TW-MD-05_GW-10142021	TW-MD-06 10/14/21 TW-MD-06_GW-10142021	TW-MD-07 10/14/21 TW-MD-07_GW-10142021
Field Parameters												
pH	6.5-8.5	6.5-8.5	6.5-9.0	- -	- -	- -	- -	- -	SU	7.31	7.12	6.86
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	NTU	0.02	0.02	6.13
PCBs												
Aroclor-1016 (PCB-1016)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1221 (PCB-1221)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1232 (PCB-1232)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1242 (PCB-1242)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1248 (PCB-1248)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	0.9	< 0.1 U
Aroclor-1254 (PCB-1254)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U
Aroclor-1260 (PCB-1260)	0.5	0.5	0.2	- -	- -	- -	- -	- -	ug/L	< 0.1 U	< 0.1 U	< 0.1 U
Total PCBs	0.5	0.5	0.2	- -	45	45	- -	- -	ug/L	< 0.1 U	0.9	< 0.1 U
Volatile Organics												
Acetone	730	2,100	1,700	- -	1,000,000,000	1,000,000,000	*40,000,000*	40,000,000	ug/L	< 50 U	< 50 U	< 50 U
Benzene	5	5	200	- -	5,600	35,000	*28*	66	ug/L	< 1 U	< 1 U	< 1 U
Bromodichloromethane	80	80	- -	- -	4,800	37,000	*34*	73	ug/L	< 1 U	< 1 U	< 1 U
Bromoform	80	80	- -	- -	470,000	3,100,000	*2,700*	6,200	ug/L	< 1 U	< 1 U	< 1 U
Bromomethane (Methyl bromide)	10	29	5	- -	4,000	9,000	*55*	80	ug/L	< 5 U	< 5 U	< 5 U
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	240,000,000	240,000,000	*4,300,000*	4,300,000	ug/L	< 25 U	< 25 U	< 25 U
Carbon disulfide	800	2,300	- -	- -	250,000	550,000	*2,100*	3,100	ug/L	< 5 U	< 5 U	< 5 U
Carbon tetrachloride	5	5	38	- -	370	2,400	*7.7*	18	ug/L	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	1,100,000	1,100,000	*190*	560	ug/L	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	220,000	300,000	*49*	410	ug/L	< 5 U	< 5 U	< 5 U
Chlorobenzene	100	100	25	- -	210,000	470,000	*940*	1,400	ug/L	< 1 U	< 1 U	< 1 U
Dibromochloromethane	80	80	- -	- -	14,000	110,000	*23*	130	ug/L	< 5 U	< 5 U	< 5 U
Chloroethane	430	1,700	1,100	- -	5,700,000	5,700,000	*15,000*	22,000	ug/L	< 5 U	< 5 U	< 5 U
Chloroform (Trichloromethane)	80	80	350	- -	28,000	180,000	*14*	32	ug/L	< 1 U	< 1 U	< 1 U
Chloromethane (Methyl chloride)	260	1,100	- -	- -	8,600	45,000	*380*	560	ug/L	< 5 U	< 5 U	< 5 U
Cyclohexane	- -	- -	- -	- -	- -	- -	*2,000*	8,100	ug/L	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	220	1,200	*0.00045*	0.021	ug/L	< 5 U	< 5 U	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	2,400	15,000	*3.8*	8.9	ug/L	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	600	600	13	- -	160,000	160,000	*11,000*	16,000	ug/L	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	6.6	19	28	- -	18,000	41,000	*75*	110	ug/L	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	75	75	17	- -	16,000	74,000	*170*	400	ug/L	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	880	2,500	740	- -	1,000,000	2,300,000	*130*	300	ug/L	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	5	5	360	- -	9,600	59,000	*41*	97	ug/L	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	7	7	130	- -	200	1,300	*330*	480	ug/L	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	70	70	620	- -	93,000	210,000	*95*	140	ug/L	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	100	100	1,500	- -	85,000	200,000	*390*	580	ug/L	< 1 U	< 1 U	< 1 U
Methylene chloride	5	5	1,500	- -	220,000	1,400,000	*8,400*	12,000	ug/L	< 5 U	< 5 U	< 5 U
1,2-Dichloropropane	5	5	230	- -	16,000	36,000	*74*	110	ug/L	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U
Ethylbenzene*	74	74	18	**700**	110,000	170,000	*74*	170	ug/L	< 1 U	< 1 U	< 1 U
Isopropyl benzene	800	2,300	28	- -	56,000	56,000	*15*	36	ug/L	< 1 U	< 1 U	< 1 U
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U	< 10 U	< 10 U
2-Hexanone	1,000	2,900	- -	- -	4,200,000	8,700,000	*20,000*	29,000	ug/L	< 50 U	< 50 U	< 50 U
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	20,000,000	20,000,000	*330,000*	330,000	ug/L	< 50 U	< 50 U	< 50 U
Methyl tert butyl ether (MTBE)*	40	40	7,100	**690**	47,000,000	47,000,000	*7,400*	17,000	ug/L	< 5 U	< 5 U	< 5 U
Styrene	100	100	80	- -	170,000	310,000	*960*	2,300	ug/L	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	12,000	77,000	*71*	170	ug/L	< 1 U	< 1 U	< 1 U
Tetrachloroethene	5	5	60	- -	25,000	170,000	*130*	130	ug/L	< 1 U	< 1 U	< 1 U
Toluene*	790	790	270	**1,000**	530,000	530,000	*41,000*	59,000	ug/L	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	70	70	99	- -	300,000	300,000	*110*	160	ug/L	< 5 U	< 5 U	< 5 U
1,1,1-Trichloroethane	200	200	89	- -	660,000	1,300,000	*14,000*	19,000	ug/L	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	5	5	330	- -	17,000	110,000	*14*	20	ug/L	< 1 U	< 1 U	< 1 U
Trichloroethene	5	5	200	- -	2,200	4,900	*10*	10	ug/L	< 1 U	< 1 U	< 1 U
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	170,000	170,000	*2,700*	26,000	ug/L	< 1 U	< 1 U	< 1 U
Vinyl chloride	2	2	13	- -	1,100	13,000	*2.1*	18	ug/L	< 1 U	< 1 U	< 1 U
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	< 2 U
o-Xylene	NA	NA	NA	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U
Total Xylenes*	280	280	49	**10,000**	190,000	190,000	*2,000*	3,000	ug/L	< 2 U	< 2 U	< 2 U

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential GVIIC	Nonresidential GVIIC	Residential VIAP	Nonresidential VIAP	Units	TW-MD-05 10/14/21 TW-MD-05_GW-10142021	TW-MD-06 10/14/21 TW-MD-06_GW-10142021	TW-MD-07 10/14/21 TW-MD-07_GW-10142021
Volatile Organics-SIM												
1,4-Dioxane	7.2	350	280	- -	- -	- -	*56,000*	130,000	ug/L	NA	NA	2
Inorganics												
Antimony	6	6	130	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Arsenic	10	10	10	- -	- -	- -	- -	- -	ug/L	5	7	< 2 U
Barium	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	86	118	365
Beryllium	4	4	6.7	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U
Cadmium	5	5	2.5	- -	- -	- -	- -	- -	ug/L	< 0.5 U	< 0.5 U	< 0.5 U
Calcium	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	46,800	76,900	176,000
Chromium	100	100	11	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Cobalt	40	100	100	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Copper*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Iron*	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	**8,210**	**9,840**	**34,600**
Lead	4	4	14	- -	- -	- -	- -	- -	ug/L	< 3 U	< 3 U	< 3 U
Magnesium	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	20,100	24,500	32,700
Manganese*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	287	419	547
Mercury	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	100	100	73	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Selenium	50	50	5	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Silver	34	98	0.2	- -	- -	- -	- -	- -	ug/L	< 0.5 U	< 0.5 U	< 0.5 U
Thallium	2	2	3.7	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	< 2 U
Vanadium	4.5	62	27	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	< 5 U
Zinc	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	< 5 U	< 5 U	5
Inorganics-Filtered												
Antimony (dissolved)	6	6	130	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Arsenic (dissolved)	10	10	10	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Barium (dissolved)	2,000	2,000	670	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Beryllium (dissolved)	4	4	6.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Cadmium (dissolved)	5	5	2.5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Calcium (dissolved)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Chromium Total (dissolved)	100	100	11	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Cobalt (dissolved)	40	100	100	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Copper (dissolved)*	1000	1000	13	**4,000**	- -	- -	- -	- -	ug/L	NA	NA	NA
Iron (dissolved)	300	300	- -	**5,600**	- -	- -	- -	- -	ug/L	NA	NA	NA
Lead (dissolved)	4	4	14	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Magnesium (dissolved)	400,000	1,100,000	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Manganese (dissolved)*	50	50	1,300	**2,500**	- -	- -	- -	- -	ug/L	NA	NA	NA
Mercury (dissolved)	2	2	0.0013	- -	56	56	*2.5*	3.7	ug/L	NA	NA	NA
Nickel (dissolved)	100	100	73	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Selenium (dissolved)	50	50	5	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Silver (dissolved)	34	98	0.2	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Thallium (dissolved)	2	2	3.7	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Vanadium (dissolved)	4.5	62	27	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Zinc (dissolved)	2,400	5000	170	- -	- -	- -	- -	- -	ug/L	NA	NA	NA
Miscellaneous												
Alkalinity, total (as CaCO3)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	466,000	396,000	286,000
Hardness	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	123,000	216,000	468,000
Total dissolved solids (TDS)	500,000	500,000	500,000	- -	- -	- -	- -	- -	ug/L	740,000	730,000	3,040,000
Total suspended solids (TSS)	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	17,000	20,000	59,000

See Notes on last page.

Table 2
Summary of Groundwater Analytical Results - Non-Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Notes:

1) Criteria listed are from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, December 21, 2020.

2) Residential and Nonresidential Volatilization to Indoor Air Pathway Screening Levels (Groundwater Not in Contact) are from the DEQ Guidance Document for the Vapor Intrusion Pathway, Appendix C - Tables 1 and 2, September 4, 2020.

3) Groundwater Surface Water Interface Criteria listed for barium, beryllium, cadmium, chromium, copper, lead, manganese, nickel and zinc are calculated based on a hardness of 150 mg/L-CaCO3 for southern Lower Peninsula protected as a drinking water source.

4) Yellow highlighted values denotes exceedance and/or equal to Michigan Residential Drinking Water.
5) Orange highlighted values denotes exceedance and/or equal to Non-Residential Drinking Water.
6) Grey shaded values denotes exceedance and/or equal to Michigan Groundwater Surface Water Interface.
7) Bold values denotes exceedance and/or equal to Non-Residential Health Based Drinking Water Value.
8) Values in italics denotes exceedance and/or equal to Residential Groundwater Volatilization to Indoor Air Pathway Screening Levels (Groundwater Not in Contact).
9) Values in red type denotes exceedance and/or equal to Non-Residential Groundwater Volatilization to Indoor Air Pathway Screening Levels (Groundwater Not in Contact).
10) Underlined values denotes exceedance and/or equal to Residential Groundwater Volatilization to Indoor Air Inhalation criteria.
11) Double underlined values denotes exceedance and/or equal to Non-Residential Groundwater Volatilization to Indoor Air Inhalation criteria.
12) Duplicate analyses are presented in brackets.
13) Constituents flagged with an (*) symbol have Residential and Non-Residential Drinking Water criteria which represent aesthetic drinking water values. The Non-Residential Health Based Drinking Water Value associated with these constituents will be utilized for Site comparison as is more applicable.

Abbreviations:

ug/L	Micrograms per liter
<	Not detected above the laboratory reporting limit
E	Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).
GVIIC	Groundwater Volatilization to Indoor Air Criteria
NA	Not Analyzed
NTU	Nephelometric Turbidity Unit
PCBs	Polychlorinated biphenyls
SIM	Selected ion monitoring
SU	Standard Unit
U	Compound was analyzed for but not detected. The associated value is the compound quantitation limit.
VIAP	Volatilization to Indoor Air Pathway

Table 3
Summary of Groundwater Analytical Results - Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Res Fiero SSVIAC SOG	Res Fiero SSVIAC BASE	NR Fiero SSVIAC <50k SOG	NR Fiero SSVIAC <50k BASE	NR Fiero SSVIAC >50k SOG	NR Fiero SSVIAC >50k BASE	Units	MW-02-17 10/19/21 MW-02-17_GW-10192021	MW-05-18 10/18/21 MW-05-18_GW-10182021	MWF12-01R 10/18/21 MWF12-01R_GW-10182021	MWF12-01R 10/18/21 MWF12-01R_GW-10182021	MWF12-01R 10/18/21 DUP-05_GW-10182021
Field Parameters																
pH	6.5-8.5 (E)	6.5-8.5 (E)	6.5-9.0	- -	- -	- -	- -	- -	- -	- -	SU	7.20	7.16		6.97	
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	NTU	4.76	5.76		4.78	
Volatile Organics																
Acetone	730	2,100	1,700	- -	*32,000,000*	*18,000,000*	240,000,000	110,000,000	360,000,000	160,000,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U
Benzene	5	5	200	- -	*34*	*18*	1,100	510	1,700	760	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Bromodichloromethane	80	80	- -	- -	*60*	*31*	1,700	760	2,600	1,100	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Bromoform	80	80	- -	- -	*6,400*	*3,200*	200,000	83,000	300,000	120,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Bromomethane (Methyl bromide)	10	29	5	- -	*59*	*33*	1,200	580	1,900	860	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	*4,000,000*	*2,200,000*	59,000,000	27,000,000	88,000,000	40,000,000	ug/L	< 25 U	< 25 U	< 25 U	< 25 U [< 25 U]	< 25 U
Carbon disulfide	800	2,300	- -	- -	*2,200*	*1,200*	46,000	22,000	70,000	33,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Carbon tetrachloride	5	5	38	- -	*14*	*7.2*	440	190	650	290	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	*300*	*160*	6,000	2,700	9,000	4,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	*71*	*38*	1,400	640	2,100	960	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Chlorobenzene	100	100	25	- -	*1,300*	*720*	27,000	12,000	41,000	18,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Dibromochloromethane	80	80	- -	- -	*58*	*29*	4,400	1,800	6,600	2,800	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Chloroethane	430	1,700	1,100	- -	*15,000*	*8,600*	320,000	150,000	490,000	230,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Chloroform (Trichloromethane)	80	80	350	- -	*19*	*10*	610	270	910	410	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Chloromethane (Methyl chloride)	260	1,100	- -	- -	*340*	*200*	7,400	3,500	11,000	5,300	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Cyclohexane	- -	- -	- -	- -	*2,600*	*1,400*	53,000	24,000	55,000	36,000	ug/L	< 1 U	< 1 U	NA	< 1 U [< 1 U]	NA
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	*0.00045*	*0.00045*	0.042	0.029	0.061	0.042	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	*8*	*4*	250	110	370	160	ug/L	< 1 U	< 1 U	NA	< 1 U [< 1 U]	NA
1,2-Dichlorobenzene	600	600	13	- -	*19,000*	*9,900*	160,000	160,000	160,000	160,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
1,3-Dichlorobenzene	6.6	19	28	- -	*130*	*70*	2,700	1,200	4,000	1,700	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
1,4-Dichlorobenzene	75	75	17	- -	*310*	*160*	9,800	4,300	15,000	6,400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
1,1-Dichloroethane	880	2,500	740	- -	*160*	*88*	5,300	2,400	8,000	3,600	ug/L	1	6	5	5 [5]	5
1,2-Dichloroethane	5	5	360	- -	*50*	*27*	1,600	750	2,500	1,100	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
1,1-Dichloroethene	7	7	130	- -	*410*	*220*	8,300	3,800	13,000	5,700	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
cis-1,2-Dichloroethene	70	70	620	- -	*110*	*62*	2,300	1,100	3,500	1,600	ug/L	< 1 U	10	< 1 U	< 1 U [< 1 U]	< 1 U
trans-1,2-Dichloroethene	100	100	1,500	- -	*480*	*260*	9,800	4,500	15,000	6,700	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Methylene chloride	5	5	1,500	- -	*9,100*	*5,000*	190,000	88,000	280,000	130,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
1,2-Dichloropropane	5	5	230	- -	*100*	*56*	2,100	950	3,200	1,400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Ethylbenzene*	74 (E)	74 (E)	18	**700**	*110*	*60*	3,600	1,600	5,400	2,400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Isopropyl benzene	800	2300	28	- -	*26*	*13*	810	360	1,200	540	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 10 U	< 10 U	NA	< 10 U [< 10 U]	NA
2-Hexanone	1,000	2,900	- -	- -	*24,000*	*12,000*	490,000	220,000	740,000	320,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	NA	< 1 U [< 1 U]	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	*1,600,000*	*810,000*	19,000,000	9,500,000	19,000,000	14,000,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U
Methyl tert butyl ether (MTBE)*	40 (E)	40 (E)	7,100	**690**	*10,000*	*5,300*	320,000	150,000	490,000	220,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
Styrene	100	100	80	- -	*1,400*	*740*	45,000	20,000	67,000	30,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	*130*	*66*	4,100	1,800	6,200	2,600	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Tetrachloroethene	5	5	60	- -	*250*	*130*	3,400	1,500	5,000	2,200	ug/L	5	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Toluene*	790 (E)	790 (E)	270	**1,000**	*56,000*	*30,000*	530,000	250,000	530,000	380,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
1,2,4-Trichlorobenzene	70	70	99	- -	*270*	*130*	5,100	2,200	7,700	3,300	ug/L	< 5 U	< 5 U	< 5 U	< 5 U [< 5 U]	< 5 U
1,1,1-Trichloroethane	200	200	89	- -	*22,000*	*11,000*	210,000	92,000	310,000	140,000	ug/L	2	4	40	40 [41]	41
1,1,2-Trichloroethane	5	5	330	- -	*21*	*11*	410	180	620	280	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Trichloroethene	5	5	200	- -	*15*	*8.1*	210	93	310	140	ug/L	7	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	*7,100*	*3,600*	140,000	58,000	170,000	88,000	ug/L	< 1 U	< 1 U	NA	< 1 U [< 1 U]	NA
Vinyl chloride	2	2	13	- -	*2.2*	*1.2*	260	120	390	180	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 2 U	< 2 U	< 2 U	< 2 U [< 2 U]	< 2 U
o-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	ug/L	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U
Total Xylenes*	280 (E)	280 (E)	49	**10,000**	*3,000*	*1,600*	60,000	27,000	91,000	41,000	ug/L	< 2 U	< 2 U	< 2 U	< 2 U [< 2 U]	< 2 U
Volatile Organics-SIM																
1,4-Dioxane	7.2	350	280	- -	*43,000*	*22,000*	1,500,000	670,000	2,300,000	1,000,000	ug/L	5	2	83	83 [86]	86
Inorganics																
Manganese	50 (E)	50 (E)	1,300	**2,500**	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	0.150	150 [142]	0.142
Inorganics-Filtered																
Manganese (dissolved)	50 (E)	50 (E)	1,300	**2,500**	- -	- -	- -	- -	- -	- -	ug/L	NA	NA	0.140	140 [142]	0.142

See Notes on Last Page.

Table 3
Summary of Groundwater Analytical Results - Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Location ID: Date Collected: Sample Name:	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Res Fiero SSVIAC SOG	Res Fiero SSVIAC BASE	NR Fiero SSVIAC <50k SOG	NR Fiero SSVIAC <50k BASE	NR Fiero SSVIAC >50k SOG	NR Fiero SSVIAC >50k BASE	MWF16-06 10/18/21 MWF16-06_GW-10182021	MWF16-23 10/13/21 MWF16-23_GW-10132021	MWF16-25 10/13/21 MWF16-25_101321	MWF7-02 10/18/21 MWF7-02_GW-10182021	MWF8-01 10/18/21 MWF8-01_GW-10182021
Field Parameters															
pH	6.5-8.5 (E)	6.5-8.5 (E)	6.5-9.0	- -	- -	- -	- -	- -	- -	- -	7.78	6.88	7.22	7.15	7.06
Turbidity	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	9.02	0.43	3.79	5.58	4.02
Volatile Organics															
Acetone	730	2,100	1,700	- -	*32,000,000*	*18,000,000*	240,000,000	110,000,000	360,000,000	160,000,000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Benzene	5	5	200	- -	*34*	*18*	1,100	510	1,700	760	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	80	80	- -	- -	*60*	*31*	1,700	760	2,600	1,100	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	80	80	- -	- -	*6,400*	*3,200*	200,000	83,000	300,000	120,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane (Methyl bromide)	10	29	5	- -	*59*	*33*	1,200	580	1,900	860	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
2-Butanone (Methyl ethyl ketone) (MEK)	13,000	38,000	2,200	- -	*4,000,000*	*2,200,000*	59,000,000	27,000,000	88,000,000	40,000,000	< 25 U	< 25 U	< 25 U	< 25 U	< 25 U
Carbon disulfide	800	2,300	- -	- -	*2,200*	*1,200*	46,000	22,000	70,000	33,000	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon tetrachloride	5	5	38	- -	*14*	*7.2*	440	190	650	290	*10*	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	2,600	7,300	- -	- -	*300*	*160*	6,000	2,700	9,000	4,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	1,700	4,800	- -	- -	*71*	*38*	1,400	640	2,100	960	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chlorobenzene	100	100	25	- -	*1,300*	*720*	27,000	12,000	41,000	18,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromochloromethane	80	80	- -	- -	*58*	*29*	4,400	1,800	6,600	2,800	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroethane	430	1,700	1,100	- -	*15,000*	*8,600*	320,000	150,000	490,000	230,000	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroform (Trichloromethane)	80	80	350	- -	*19*	*10*	610	270	910	410	*18*	< 1 U	3	< 1 U	1
Chloromethane (Methyl chloride)	260	1,100	- -	- -	*340*	*200*	7,400	3,500	11,000	5,300	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Cyclohexane	- -	- -	- -	- -	*2,600*	*1,400*	53,000	24,000	55,000	36,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	- -	- -	*0.00045*	*0.00045*	0.042	0.029	0.061	0.042	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	- -	*8*	*4*	250	110	370	160	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	600	600	13	- -	*19,000*	*9,900*	160,000	160,000	160,000	160,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	6.6	19	28	- -	*130*	*70*	2,700	1,200	4,000	1,700	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	75	75	17	- -	*310*	*160*	9,800	4,300	15,000	6,400	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	880	2,500	740	- -	*160*	*88*	5,300	2,400	8,000	3,600	19	4	5	29	< 1 U
1,2-Dichloroethane	5	5	360	- -	*50*	*27*	1,600	750	2,500	1,100	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	7	7	130	- -	*410*	*220*	8,300	3,800	13,000	5,700	4	< 1 U	< 1 U	11	< 1 U
cis-1,2-Dichloroethene	70	70	620	- -	*110*	*62*	2,300	1,100	3,500	1,600	4	3	22	3	< 1 U
trans-1,2-Dichloroethene	100	100	1,500	- -	*480*	*260*	9,800	4,500	15,000	6,700	< 1 U	< 1 U	2	< 1 U	< 1 U
Methylene chloride	5	5	1,500	- -	*9,100*	*5,000*	190,000	88,000	280,000	130,000	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dichloropropane	5	5	230	- -	*100*	*56*	2,100	950	3,200	1,400	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene*	74 (E)	74 (E)	18	**700**	*110*	*60*	3,600	1,600	5,400	2,400	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Isopropyl benzene	800	2300	28	- -	*26*	*13*	810	360	1,200	540	< 5 U	< 1 U	< 1 U	< 5 U	< 5 U
Methyl acetate	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Hexanone	1,000	2,900	- -	- -	*24,000*	*12,000*	490,000	220,000	740,000	320,000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Methyl cyclohexane	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1,800	5,200	- -	- -	*1,600,000*	*810,000*	19,000,000	9,500,000	19,000,000	14,000,000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Methyl tert butyl ether (MTBE)*	40 (E)	40 (E)	7,100	**690**	*10,000*	*5,300*	320,000	150,000	490,000	220,000	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Styrene	100	100	80	- -	*1,400*	*740*	45,000	20,000	67,000	30,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	8.5	35	78	- -	*130*	*66*	4,100	1,800	6,200	2,600	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	5	5	60	- -	*250*	*130*	3,400	1,500	5,000	2,200	56	< 1 U	< 1 U	84	< 1 U
Toluene*	790 (E)	790 (E)	270	**1,000**	*56,000*	*30,000*	530,000	250,000	530,000	380,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	70	70	99	- -	*270*	*130*	5,100	2,200	7,700	3,300	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1,1-Trichloroethane	200	200	89	- -	*22,000*	*11,000*	210,000	92,000	310,000	140,000	106	11	3	95	< 1 U
1,1,2-Trichloroethane	5	5	330	- -	*21*	*11*	410	180	620	280	< 1 U	< 1 U	< 1 U	1	< 1 U
Trichloroethene	5	5	200	- -	*15*	*8.1*	210	93	310	140	5	*18*	< 1 U	4	< 1 U
Trifluorotrichloroethane (Freon 113)	170,000	170,000	32	- -	*7,100*	*3,600*	140,000	58,000	170,000	88,000	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	2	2	13	- -	*2.2*	*1.2*	260	120	390	180	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
m&p-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
o-Xylene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Total Xylenes*	280 (E)	280 (E)	49	**10,000**	*3,000*	*1,600*	60,000	27,000	91,000	41,000	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Volatile Organics-SIM															
1,4-Dioxane	7.2	350	280	- -	*43,000*	*22,000*	1,500,000	670,000	2,300,000	1,000,000	5	2	3	141	NA
Inorganics															
Manganese	50 (E)	50 (E)	1,300	**2,500**	- -	- -	- -	- -	- -	- -	NA	NA	NA	NA	NA
Inorganics-Filtered															
Manganese (dissolved)	50 (E)	50 (E)	1,300	**2,500**	- -	- -	- -	- -	- -	- -	NA	NA	NA	NA	NA

See Notes on Last Page.

Table 3
Summary of Groundwater Analytical Results - Fiero
2021 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus

Notes:

1) Criteria listed are from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, December 21, 2020.

2) Department of Environment, Great Lakes and Energy (EGLE) developed Site-Specific Volatilization to Indoor Air Criteria for the Former Fiero Assembly, April 21, 2020

3) Groundwater Surface Water Interface Criteria listed for barium, beryllium, cadmium, chromium, copper, lead, manganese, nickel and zinc are calculated based on a hardness of 150 mg/L-CaCO3 for southern Lower Peninsula protected as a drinking water source.

4) Yellow highlighted values denotes exceedance and/or equal to Michigan Residential Drinking Water.
5) Orange highlighted values denotes exceedance and/or equal to Non-Residential Drinking Water.
6) Grey shaded values denotes exceedance and/or equal to Michigan Groundwater Surface Water Interface.
7) Bold values denotes exceedance and/or equal to Non-Residential Health Based Drinking Water Value.
8) Values in italics denotes exceedance and/or equal to Residential Site-Specific Volatilization to Indoor Air criteria for basement and/or slab-on-grade.
9) Values in red denotes exceedance and/or equal to Nonresidential Site-Specific Volatilization to Indoor Air criteria for basement and/or slab-on-grade.
10) Duplicate analyses are presented in brackets.
11) Constituents flagged with an (*) symbol have Residential and Non-Residential Drinking Water criteria which represent aesthetic drinking water values. The Non-Residential Health Based Drinking Water Value associated with these constituents will be utilized for Site comparison as is more applicable.

Abbreviations:

ug/L	Micrograms per liter.
<	Not detected above the laboratory reporting limit
>/<50k	Greater than 50,000 or less than 50,000
BASE	Basement
E	Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).
NTU	Nephelometric Turbidity Unit
Res	Residential
SIM	Selected ion monitoring
SOG	Slab on Grade
SSVIAC	Site-Specific Volatilization to Indoor Air Criteria
SU	Standard Unit
U	Compound was analyzed for but not detected. The associated value is the compound quantitation limit.
NA	Not analyzed.

Figures

Service Layer Credits: Google Earth Pro Aerial Dated March 19, 2021

SPO PARKING

FORMER BUILDING 25

SPO

FORMER BUILDING 15

FORMER PLANT 12

BUILDING 14

FORMER FIERO PARKING LOT

FORMER FIERO PLANT 17

FORMER POWER HOUSE FACILITY

GM WWTP

FORMER BUILDING 14S (PLANTS 5 AND 23)

GM POWERTRAIN

USPS REGIONAL DISTRIBUTION CENTER

HARRIS LAKE

FORMER STORMWATER DETENTION FACILITY

PERRY PARK

OAKLAND PARK

W Walton Blvd
E Walton Blvd
Lehigh Ave
W Sheffield
E Sheffield
W Princeton
E Princeton
W Hopkins
E Hopkins
W Yale
E Yale
W Ypsilanti
E Ypsilanti
E Ann Arbor
W Columbia
E Columbia
W Longfellow
E Longfellow
W Strathmore
E Strathmore
W Fairmount
E Fairmount
W Rutgers
E Rutgers
W Cornell
E Cornell
W Beverly Ave
E Beverly Ave
W Tennyson
E Tennyson
Saint Louis Ave
W Kennett Rd
E Kennett Rd
Parkdale Ave
N Merrimac St
S Merrimac
Owens St
W Montcalm
E Montcalm
Hillside Dr
City Line Rd
Le Grande
Garner
Hudson
W Rundell
Tacoma Ct
Hamilton
Whitfield
Virginia
Grandie
Home
Kemp
E Rundell
Beverly Ave
4th St
3rd Ave
2nd Ave
1st Ave
Peacock
Clara
E Beverly Ave
E Mansfield
E Madison
Le Baron
Wesbrook
Lenox
Markle
Raskob
E Kennett Rd
Lowell
Tennyson
Hollywood
Alpine Ln
Bellmore Ln
Concord Ln
Deerfield Ln
Highwood
Highwood Blvd
Laurel
Jaycee Park Rd
Ivy
Baldwin Ave
Price
Saint Clair St
Young
Wylie
Portland
Burt
Cadillac
Kimball
N Saginaw St
Edison
Wolfe
Marquette
N Glenwood
Nelson
Hammond
Glenwood Ave
Joslyn Ave
McNeil St
Hood
Riker

LEGEND

- PROPERTY BOUNDARY
- PROPERTY SOLD BY RACER
- GENERAL MOTORS, LLC (GM)
- CURRENT OR FORMER RACER PROPERTY

SPO – SERVICE PARTS OPERATION

USPS – UNITED STATES POSTAL SERVICE

WWTP – WASTEWATER TREATMENT PLANT

NOTE: ALL BOUNDARIES ARE APPROXIMATE

0 300 600

SCALE IN FEET

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SITE LAYOUT MAP

ARCADIS

FIGURE 1

CITY: NOVI, MI DIV: ENV DB: TRY PIC: PM: B. SANDERS TM: TR: PROJECT NUMBER: 30006882
COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampus\Documents\Racer_PNC Site Map.mxd PLOTTED: 12/21/2021 12:19:58 PM BY: TYarbrough

MWM4-05
980.43*

MWM4-06R

MWM16-30
958.69

MWM5-02
958.13

MWM5-03
958.13

MWM16-02
957.99

MWM16-31
958.35

MWM16-37
958.05

958

MWM31-02
957.57

MWM32-01
957.08

956

MWF8-01
955.17

PZF17-01
953.04

PZF17-02
954.07

PZF17-03
951.82

PZF17-04
953.14

PZF17-05
950.41

MWF16-10
954.70

MWF16-11
955.35*

MWF16-05
954.39

MWF16-06
964.39*

MWF16-16
951.63

954

MWF16-23
950.16

MWF7-02
952.36

MWF16-25
949.85

MW-08-21
949.38

MWOS-08
949.75

MW-05-18
948.59

952

MWF12-01R
948.43

RW-08-14
NS

MW-02-17
947.20

MWF12-02

MWW10-03
951.68

950

SB-25-14
952.69

948

946

944

942

938

940

MWW10-SEN01
951.35

MWW01-SEN03
944.86

MWW10-SEN02
943.03

MWOS-01
936.71

MWOS-02
936.63

MWW1-15
943.04

MW-40-99
942.81

MWW1-04
942.32

MWOS-03
936.97

MWW1-06
940.29

MW-01-17
943.24

MWOS-04
938.96

TW-MD-01
942.09

TW-MD-02
939.78

TW-01-01
947.96

TW-01-02
952.47

TW-MD-03
941.21

TW-MD-04
940.93

TW-MD-05
941.03

MWM2-22
955.40

MWM2-37
922.77*

MWM2-28
956.08

MW-04-17
958.62

INJ-02-18
957.82

INJ-01-17
958.62

MWW5-01

MW-03-17
958.78

TWW8-01
946.65*

MWW8-65
NA

TW-11-02
965.00*

MWW8-36
953.91

RWW8-129
953.09

TW-09-01
958.49

TW-03-01
952.18*

TW-11-01
964.22*

TW-10-01
953.84

TW-10-02
958.36

RWW8-133
953.53

TW-01-03
954.86

SB-43-14
DRY

MWW01-SEN04
942.09

TW-MD-06
940.96

TW-MD-07
941.51

MWOS-06
943.13

MWDP-05
943.17

MWDP-3R
945.08

MWOS-07
944.64

MWDP-1R
946.48

MWOS-05
943.76

PZOS-02
941.78

LEGEND

- GROUNDWATER MONITORING LOCATION
- 938.97 GROUNDWATER ELEVATION
- * WELL NOT APPROPRIATE FOR GROUNDWATER CONTOURING DUE TO SCREEN DEPTH AND/OR NOT REPRESENTATIVE OF SITE HYDROLOGY
- GROUNDWATER CONTOUR (5.0 FEET INTERVAL)
- INFERRED GROUNDWATER CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- ABANDONED MONITORING WELL
- DAMAGED MONITORING WELL
- TOE DRAIN
- USPS DISTRIBUTION CENTER PROPERTY BOUNDARY
- CURRENT OR FORMER RACER PROPERTY
- NS NOT SURVEYED
- NA NOT AVAILABLE; WELL ONLY CONTAINED LNAPL AND A DEPTH TO WATER MEASUREMENT WAS NOT AVAILABLE.

NOTES

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.

2. GROUNDWATER ELEVATIONS CALCULATED FROM WATER LEVELS COLLECTED ON OCTOBER 11, 2021. INJ-01-17, INJ-02-18, MW-03-17, AND MW-04-17 WATER LEVELS WERE COLLECTED ON OCTOBER 14, 2021. PZF17-05 WATER LEVEL WAS COLLECTED ON OCTOBER 15, 2021.

3. ALL ELEVATIONS ARE REFERENCED TO A MEAN SEA LEVEL DATUM AND ARE IN UNITS OF FEET ABOVE MEAN SEA LEVEL.

4. WELLS WITH NO GROUNDWATER ELEVATION AND LABEL WERE NOT INCLUDED IN THE ANNUAL SAMPLING AND GAUGING.

5. THE EQUIVALENT GROUNDWATER ELEVATION IS CALCULATED WHERE LNAPL IS PRESENT USING THE LNAPL SURFACE ELEVATION, THE THICKNESS OF LNAPL AND THE APPROXIMATE SPECIFIC DENSITY OF THE LNAPL (0.88).

6. MWF12-02 WAS DAMAGED AND PROPERLY ABANDONED. IT WILL BE REPLACED.

7. MWW5-01 WAS DAMAGED AND COULD NOT BE GAUGED. IT WILL BE PROPERLY ABANDONED AND REPLACED.

0 600 1,200
SCALE IN FEET

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

GROUNDWATER CONTOUR MAP
OCTOBER - 2021

ARCADIS

FIGURE
2

CITY: NOVI, MI DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampus\Documents\Field GaugingSampling\GW GaugingSampling_2021\GWelev_202110_C.mxd PLOTTED: 2/9/2022 12:28:43 PM BY: TYarbrough

MWM16-37					
Date	10/23/2017	10/2/2018	10/10/2019	10/16/2020	10/13/2021
Field Parameters					
pH	7.06	7.12	7.17	7.29 [7.29]	7.26
VOCs					
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Vinyl chloride	4 (RDW, NRDW, RVI)	3 (RDW, NRDW, RVI)	2 (RDW, NRDW)	1 [1]	2 [2] (RDW, NRDW)

MWM16-30				
Date	10/23/2017	10/10/2019	10/15/2020	10/12/2021
Field Parameters				
pH	6.44 (RDW, NRDW, GSI)	6.86	6.83	6.9
VOCs				
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	10	6	6	6
Trichloroethene	15 (RDW, NRDW, RVI, NRVI)	17 (RDW, NRDW, RVI, NRVI)	14 (RDW, NRDW, RVI, NRVI)	12 (RDW, NRDW, RVI, NRVI)
Vinyl chloride	< 1 U	< 1 U	< 1 U	< 1 U

MWM16-31					
Date	10/23/2017	10/2/2018	10/10/2019	10/16/2020	10/12/2021
Field Parameters					
pH	7.01	7.04	7.27	7.28	7.22
VOCs					
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
Tetrachloroethene	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
Trichloroethene	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U	< 1 U
Vinyl chloride	3 (RDW, NRDW, RVI)	< 1 U	2 [2] (RDW, NRDW)	2 (RDW, NRDW)	< 1 U

MWF8-01					
Date	10/26/2017	10/4/2018	10/7/2019	10/15/2020	10/18/2021
Field Parameters					
pH	7.08	5.56 (RDW, NRDW, GSI)	6.9	6.83	7.06
VOCs					
Carbon tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	1	2	< 1 U	2	1
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl Chloride	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

MWF16-06				
Date	10/4/2018	10/7/2019	10/15/2020	10/18/2021
Field Parameters				
pH	6.44 (RDW, NRDW, GSI)	7.65	7.41	7.78
VOCs				
Carbon tetrachloride	*14 Y (RDW, NRDW, RFSSSOG, RFSSBASE)*	*13 (RDW, NRDW, RFSSBASE)*	*13 r (RDW, NRDW, RFSSBASE)*	*10 (RDW, NRDW, RFSSBASE)*
Chloroform	*38 Y (RFSSSOG, RFSSBASE)*	*34 (RFSSSOG, RFSSBASE)*	*34 r (RFSSSOG, RFSSBASE)*	*18 (RFSSBASE)*
1,1-Dichloroethane	47 Y	67	*212 E (RFSSSOG, RFSSBASE)*	19
1,1-Dichloroethene	9 Y (RDW, NRDW)	12 (RDW, NRDW)	23 r (RDW, NRDW)	4
cis-1,2-Dichloroethene	12 Y	17	*82 r (RDW, NRDW, RFSSBASE)*	4
1,4-Dioxane	15 (RDW)	29 (RDW)	20 (RDW)	5
Tetrachloroethene	70 Y (RDW, NRDW, GSI)	76 (RDW, NRDW, GSI)	127 r (RDW, NRDW, GSI)	56 (RDW, NRDW)
1,1,1-Trichloroethane	163 Y (GSI)	164 (GSI)	201 E (RDW, NRDW, GSI)	106 (GSI)
Trichloroethene	*12 Y (RDW, NRDW, RFSSBASE)*	*12 (RDW, NRDW, RFSSBASE)*	*24 r (RDW, NRDW, RFSSSOG, RFSSBASE)*	5 (RDW, NRDW)
Vinyl Chloride	< 5 UY	< 1 U	< 1 Ur	< 1 U

MWF16-23				
Date	10/1/2018	10/7/2019	10/15/2020	10/13/2021
Field Parameters				
pH	6.91	7.04	6.96	6.88
VOCs				
Carbon tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	1	< 1 U
1,1-Dichloroethane	9	6	6	4
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	19	21	10	3
1,4-Dioxane	4	< 1 U	1	2
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	9	9	10	11
Trichloroethene	*15 (RDW, NRDW, RFSSSOG, RFSSBASE)*	*20 (RDW, NRDW, RFSSSOG, RFSSBASE)*	*21 (RDW, NRDW, RFSSSOG, RFSSBASE)*	*18 (RDW, NRDW, RFSSSOG, RFSSBASE)*
Vinyl Chloride	< 1 U	< 1 U	< 1 U	< 1 U

MWF7-02				
Date	10/4/2018	10/7/2019	10/13/2020	10/18/2021
Field Parameters				
pH	5.91 (RDW, NRDW, GSI)	7.12	7.01	7.15
VOCs				
Carbon tetrachloride	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Chloroform	1 [< 1 U]	< 1 U	1	< 1 U
1,1-Dichloroethane	48 [48]	38	24	29
1,1-Dichloroethene	11 [11] (RDW, NRDW)	10 (RDW, NRDW)	15 (RDW, NRDW)	11 (RDW, NRDW)
cis-1,2-Dichloroethene	3 [3]	3	3	3
1,4-Dioxane	500 Y [500 Y] (RDW, NRDW, GSI)	300 Y (RDW, GSI)	530 Y (RDW, NRDW, GSI)	141 (RDW)
Tetrachloroethene	34 [33] (RDW, NRDW)	54 (RDW, NRDW)	70 (RDW, NRDW, GSI)	84 (RDW, NRDW, GSI)
1,1,1-Trichloroethane	73 [73]	60	77	95 (GSI)
Trichloroethene	3 [3]	3	3	4
Vinyl Chloride	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U

MW-02-17				
Date	10/2/2018	10/7/2019	10/13/2020	10/19/2021
Field Parameters				
pH	6.73	7.09	7.19	7.2
VOCs				
Carbon tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	2	2	< 1 U	1
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dioxane	21 (RDW)	29 (RDW)	30 (RDW)	5
Tetrachloroethene	6 (RDW, NRDW)	10 (RDW, NRDW)	3	5 (RDW, NRDW)
1,1,1-Trichloroethane	6	7	6	2
Trichloroethene	2	4	2	7 (RDW, NRDW)
Vinyl Chloride	< 1 U	< 1 U	< 1 U	< 1 U

MWF12-01				MWF12-01R	
Date	10/24/2017	10/3/2018	10/13/2020	10/18/2021	
Field Parameters					
pH	7.04	6.92	7.03	6.97	
VOCs					
Carbon tetrachloride	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	
Chloroform	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	
1,1-Dichloroethane	2 [2]	NA	NA	5 [5]	
1,1-Dichloroethene	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	
cis-1,2-Dichloroethene	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	
1,4-Dioxane	NA	5	107 (RDW)	83 [86] (RDW)	
Tetrachloroethene	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	
1,1,1-Trichloroethane	8 [10]	NA	NA	40 [41]	
Trichloroethene	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	
Vinyl Chloride	< 1 U [< 1 U]	NA	NA	< 1 U [< 1 U]	

MWW1-04					
Date	10/25/2017	10/4/2018	10/7/2019	10/16/2020	10/13/2021
Field Parameters					
pH	11.15 (RDW, NRDW, GSI)	11.46 (RDW, NRDW, GSI)	11.31 (RDW, NRDW, GSI)	11.55 (RDW, NRDW, GSI)	9.61 (RDW, NRDW, GSI)
VOCs					
Carbon Tetrachloride	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,4-Dioxane	NA	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Tetrachloroethene	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Trichloroethene	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U
Vinyl chloride	< 1 U [< 1 U]	< 1 U [< 1 U]	< 1 U	< 1 U	< 1 U

MW-01-17				
Date	10/3/2018	10/8/2019	10/15/2020	10/15/2021
Field Parameters				
pH	7.35	7.34	8.27	7.62
VOCs				
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dioxane	< 1 U	< 1 U	8 (RDW)	2
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	< 1 U	< 1 U	< 1 U	< 1 U

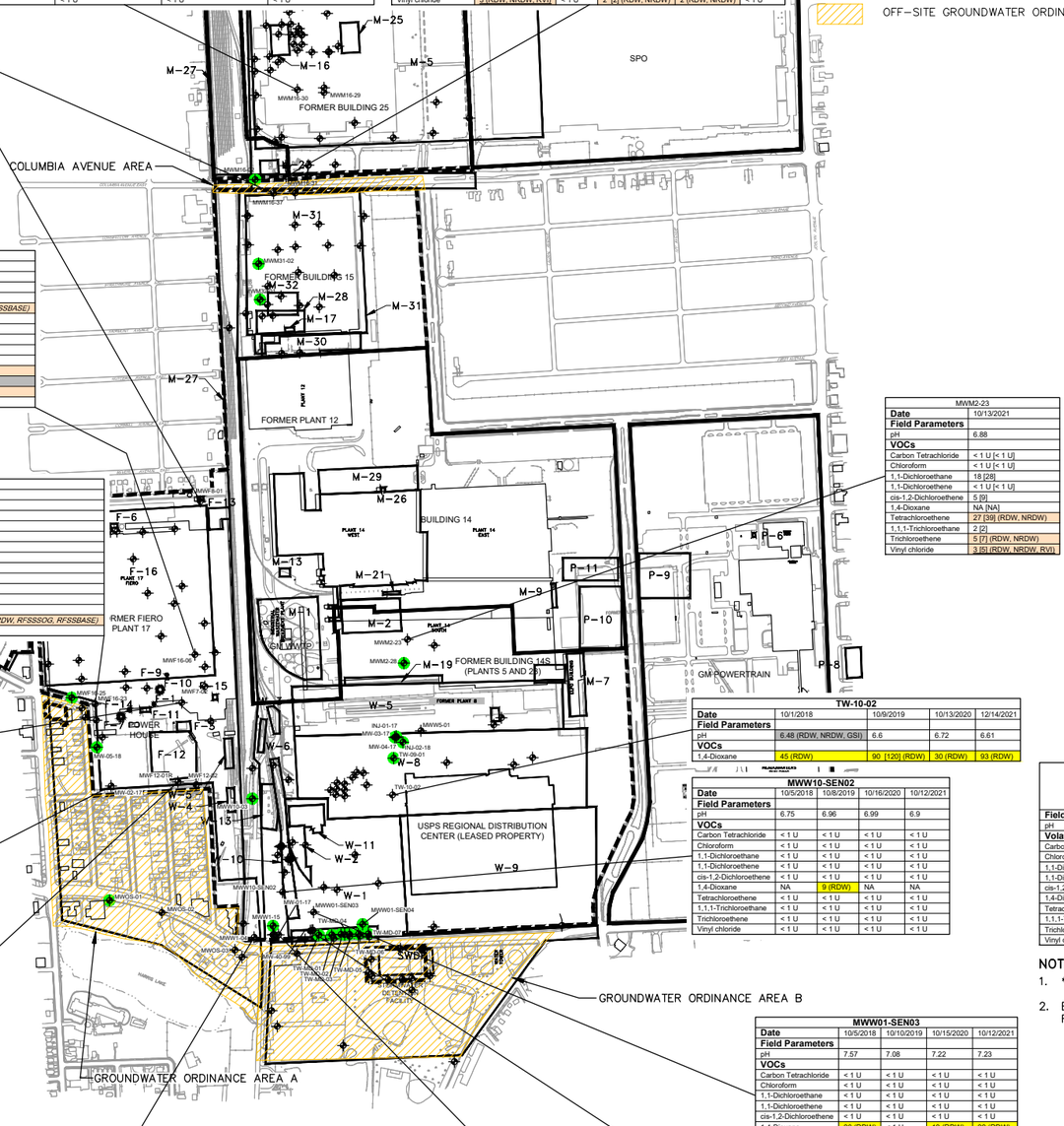
MW-40-99					
Date	10/26/2017	10/3/2018	10/9/2019	10/15/2020	10/15/2021
Field Parameters					
pH	7.15	7.12	7.02	7.38 [7.38]	7.04
VOCs					
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,4-Dioxane	NA	< 1 U	11 (RDW)	6 [6] (RDW)	1 [1]
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]
Vinyl chloride	< 1 U	< 1 U	< 1 U	< 1 U [< 1 U]	< 1 U [< 1 U]

TW-10-02				
Date	10/1/2018	10/9/2019	10/13/2020	12/14/2021
Field Parameters				
pH	6.48 (RDW, NRDW, GSI)	6.6	6.72	6.61
VOCs				
1,4-Dioxane	45 (RDW)	90 [120] (RDW)	30 (RDW)	93 (RDW)

MWW10-SEN02				
Date	10/5/2018	10/8/2019	10/16/2020	10/12/2021
Field Parameters				
pH	6.75	6.96	6.99	6.9
VOCs				
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dioxane	NA	9 (RDW)	NA	NA
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	< 1 U	< 1 U	< 1 U	< 1 U

MWW01-SEN03				
Date	10/5/2018	10/10/2019	10/15/2020	10/12/2021
Field Parameters				
pH	7.57	7.08	7.22	7.23
VOCs				
Carbon Tetrachloride	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dioxane	26 (RDW)	< 1 U	12 (RDW)	22 (RDW)
Tetrachloroethene	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	< 1 U	< 1 U	< 1 U	< 1 U

MWM2-23	
Date	10/13/2021
Field Parameters	
pH	6.88
VOCs	
Carbon Tetrachloride	< 1 U [< 1 U]
Chloroform	< 1 U [< 1 U]
1,1-Dichloroethane	18 [28]
1,1-Dichloroethene	< 1 U [< 1 U]
cis-1,2-Dichloroethene	5 [5]
1,4-Dioxane	NA [NA]
Tetrachloroethene	27 [39] (RDW, NRDW)
1,1,1-Trichloroethane	2 [2]
Trichloroethene	5 [7] (RDW, NRDW)
Vinyl chloride	3 [5] (RDW, NRDW, RVI)



LEGEND:

- APPROXIMATE GENERAL MOTORS (GM) COMPANY, LLC PROPERTY BOUNDARY
- APPROXIMATE RACER TRUST (RACER) PROPERTY BOUNDARY
- GROUNDWATER MONITORING WELL LOCATION
- FENCED AREA
- APPROXIMATE AOI (AREA OF INTEREST) AREA AND IDENTIFICATION NUMBER
- OFF-SITE GROUNDWATER ORDINANCE AREA

MICHIGAN PART 201 GENERIC CRITERIA AND FIERO SITE SPECIFIC CRITERIA FOR GROUNDWATER

- RDW – RESIDENTIAL DRINKING WATER CRITERIA
- NRDW – NONRESIDENTIAL DRINKING WATER CRITERIA
- GSI – GROUNDWATER SURFACE WATER INTERFACE CRITERIA
- RVI – RESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS
- NRVI – NONRESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS
- RFSSBASE – RESIDENTIAL FIERO SSVIAC BASEMENT
- RFSSSOG – RESIDENTIAL FIERO SSVIAC SLAB ON GRADE

- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NONRESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO GROUNDWATER SURFACE WATER INTERFACE CRITERIA
- UNDERLINED VALUE = CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS
- RED VALUE = CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NONRESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS
- *(ITALIC)* CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL FIERO SSVIAC BASEMENT AND/OR RESIDENTIAL FIERO SSVIAC SLAB ON GRADE CRITERIA
- NO EXCEEDANCES OF APPLICABLE CRITERIA FROM SAMPLING EVENTS BETWEEN 2017–2021

NOTES:

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
2. ALL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
3. DUPLICATE ANALYSES ARE PRESENTED IN BRACKETS.
4. <0.25 – CONSTITUENT NOT DETECTED ABOVE LABORATORY REPORTING LIMITS
5. NA – NOT ANALYZED
6. VOC – VOLATILE ORGANIC COMPOUND
7. Y – ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATIONS
8. X – ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE
9. U – COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE r COMPOUND QUANTITATION LIMIT
10. r – ANALYTE REPORTED FROM BEST RESULTS FROM MULTIPLE RUNS
11. ANALYTICAL DATA DATING BACK TO OCTOBER 2017 PRESENTED ON THIS FIGURE. ALL HISTORICAL DATA PRESENTED IN ATTACHMENT 3.
12. MWW5–01 AND MWF12–02 WERE DAMAGED OR DESTROYED AND NOT SAMPLED IN 2021.
13. MWM2–23 AND MWM2–28 NOT CURRENTLY INCORPORATED INTO THE GROUNDWATER MONITORING PLAN, BUT SAMPLED IN 2021 BASED ON USEPA INTEREST.
14. DATABOXES PRESENTED ON THIS FIGURE INCLUDE ONLY THOSE PARAMETERS WHERE REGULATORY EXCEEDANCES OF PROMULGATED CRITERIA EXISTS ANYTIME FROM 2017–2021.
15. pH RDW AND NRDW CRITERIA REPRESENT AESTHETIC DRINKING WATER VALUES AS REQUIRED BY SECTION 20120A(5) OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED (NREPA).
16. MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) DEVELOPED SITE–SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA (SSVIAC) FOR THE FORMER FIERO ASSEMBLY, APRIL 21, 2020.
17. OTHER CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: GROUNDWATER: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, DECEMBER 21, 2020.

	Units	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface	Residential Volatilization to Indoor Air Pathway Screening Levels	Nonresidential Volatilization to Indoor Air Pathway Screening Levels	Res Fiero SSVIAC SOG*	Res Fiero SSVIAC BASE*
Field Parameters								
pH	SU	6.5-8.5 (E)	6.5-8.5 (E)	6.5-9.0	--	--	--	--
Volatile Organics								
Carbon tetrachloride	ug/L	5	5	38	7.7	18	14	7.2
Chloroform	ug/L	80	80	350	14	32	19	10
1,1-Dichloroethane	ug/L	880	2,500	740	130	300	160	88
1,1-Dichloroethene	ug/L	7	7	130	330	480	410	220
cis-1,2-Dichloroethene	ug/L	70	70	620	95	140	110	62
1,4-Dioxane	ug/L	7.2	350	280	56,000	130,000	280	43,000	22,000
Tetrachloroethene	ug/L	5	5	60	130	130	250	130
1,1,1-Trichloroethane	ug/L	200	200	89	14,000	19,000	22,000	11,000
Trichloroethene	ug/L	5	5	200	10	10	15	8.1
Vinyl chloride	ug/L	2	2	13	2.1	18	2.2	1.2

NOTES:

1. * – ONLY APPLIES TO WELLS ON FORMER FIERO PROPERTY.
2. E – CRITERION IS THE AESTHETIC DRINKING WATER VALUE, AS REQUIRED BY SECTION 20120A(5) OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED (NREPA).

0 500' 1000'
GRAPHIC SCALE

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

GROUNDWATER ANALYTICAL SUMMARY VOCs AND pH OCTOBER 2021

ARCADIS

FIGURE
3A

MW-04-17

Date	10/2/2018	10/8/2019	10/13/2020	10/14/2021
Inorganics				
Arsenic	< 2 U	7	6	8
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	40	**6,000 (RDW, NRDW, NRHBDW)**	**12,400 (RDW, NRDW, NRHBDW)**	**19,100 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	487 (RDW, NRDW)	597 (RDW, NRDW)	451 (RDW, NRDW)	698 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	536,000 (RDW, NRDW, GSI)	884,000 (RDW, NRDW, GSI)	1,220,000 (RDW, NRDW, GSI)	1,960,000 (RDW, NRDW, GSI)

INJ-01-17

Date	10/2/2018	10/8/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	< 2 U	3 [3]	NA	4
Chromium	< 5 U	< 5 U [< 5 U]	NA	< 5 U
Copper	< 5 U	< 5 U [< 5 U]	NA	< 5 U
Iron	360 (RDW, NRDW)	5,400 [5,400] (RDW, NRDW)	NA	**19,700 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U [< 3 U]	NA	< 3 U
Manganese	402 (RDW, NRDW)	324 [331] (RDW, NRDW)	NA	640 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U [< 0.2 U]	NA	< 0.2 U
Nickel	< 5 U	< 5 U [< 5 U]	NA	< 5 U
Silver	< 0.5 U	< 0.5 U [< 0.5 U]	NA	< 0.5 U
Vanadium	< 5 U	< 5 U [< 5 U]	NA	< 5 U
Zinc	< 5 U	7 [8]	NA	18
Iron (dissolved)	NA	NA	2,870 (RDW, NRDW)	NA
Manganese (dissolved)	NA	NA	368 (RDW, NRDW)	NA
Miscellaneous				
Total dissolved solids	562,000 (RDW, NRDW, GSI)	844,000 [844,000] (RDW, NRDW, GSI)	1,260,000 (RDW, NRDW, GSI)	1,970,000 (RDW, NRDW, GSI)

LEGEND:

- APPROXIMATE GENERAL MOTORS (GM) COMPANY, LLC PROPERTY BOUNDARY
- APPROXIMATE RACER TRUST (RACER) PROPERTY BOUNDARY
- MWM1 GROUNDWATER MONITORING WELL LOCATION
- FENCED AREA
- M-5 APPROXIMATE AOI (AREA OF INTEREST) AREA AND IDENTIFICATION NUMBER
- OFF-SITE GROUNDWATER ORDINANCE AREA

MICHIGAN PART 201 GENERIC CRITERIA FOR GROUNDWATER

RDW – RESIDENTIAL DRINKING WATER CRITERIA
NRDW – NONRESIDENTIAL DRINKING WATER CRITERIA
GSI – GROUNDWATER SURFACE WATER INTERFACE CRITERIA
NRHBDW – NONRESIDENTIAL HEALTH BASED DRINKING WATER

- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NON-RESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO GROUNDWATER SURFACE WATER INTERFACE CRITERIA
- **BOLD** VALUE = CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NONRESIDENTIAL HEALTH BASED DRINKING WATER
- NO EXCEEDANCES OF APPLICABLE CRITERIA FROM SAMPLING EVENTS BETWEEN 2017-2021

MW-03-17

Date	10/2/2018	10/9/2019	10/13/2020	10/14/2021
Inorganics				
Arsenic	< 2 U	< 2 U	11 (RDW, NRDW, GSI)	18 (RDW, NRDW, GSI)
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	80	420 (RDW, NRDW)	1,720 (RDW, NRDW)	**8,630 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	562 (RDW, NRDW)	840 (RDW, NRDW)	1,330 (RDW, NRDW, GSI)	1,000 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	6	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	532,000 (RDW, NRDW, GSI)	850,000 (RDW, NRDW, GSI)	1,250,000 (RDW, NRDW, GSI)	1,920,000 (RDW, NRDW, GSI)

TW-09-01

Date	10/1/2018	10/9/2019	10/15/2020	10/15/2021
Inorganics				
Arsenic	20 (RDW, NRDW, GSI)	17 (RDW, NRDW, GSI)	20 (RDW, NRDW, GSI)	25 (RDW, NRDW, GSI)
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	4,710 (RDW, NRDW)	550 (RDW, NRDW)	3,000 (RDW, NRDW)	5,050 (RDW, NRDW)
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	561 (RDW, NRDW)	133 (RDW, NRDW)	308 (RDW, NRDW)	727 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	5	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	1,460,000 (RDW, NRDW, GSI)	1,230,000 (RDW, NRDW, GSI)	740,000 (RDW, NRDW, GSI)	914,000 (RDW, NRDW, GSI)

INJ-02-18

Date	10/2/2018	10/8/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	7	NA	2	4
Chromium	< 5 U	NA	< 5 U	< 5 U
Copper	< 5 U	NA	< 5 U	60 (GSI)
Iron	2,360 (RDW, NRDW)	**20,900 (RDW, NRDW, NRHBDW)**	**15,100 (RDW, NRDW, NRHBDW)**	**21,400 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	NA	< 3 U	< 3 U
Manganese	386 (RDW, NRDW)	NA	393 (RDW, NRDW)	623 (RDW, NRDW)
Mercury	< 0.2 U	NA	< 0.2 U	< 0.2 U
Nickel	30	NA	< 5 U	< 5 U
Silver	< 0.5 U	NA	< 0.5 U	< 0.5 U
Vanadium	< 5 U	NA	< 5 U	< 5 U
Zinc	< 5 U	NA	< 5 U	< 5 U
Manganese (dissolved)	NA	356 f (RDW, NRDW)	NA	650 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	556,000 (RDW, NRDW, GSI)	903,000 (RDW, NRDW, GSI)	1,260,000 (RDW, NRDW, GSI)	1,950,000 (RDW, NRDW, GSI)

MWW10-03

Date	10/26/2017	10/2/2018	10/10/2019	10/14/2020	10/15/2021
Inorganics					
Arsenic	NA	NA	NA	9 [7]	NA [NA]
Chromium	NA	NA	NA	< 5 U [< 5 U]	NA [NA]
Copper	NA	NA	NA	< 5 U [< 5 U]	NA [NA]
Lead	< 3 U	< 3 U	11 (RDW, NRDW)	< 3 U [< 3 U]	< 3 U [< 3 U]
Manganese	67 (RDW, NRDW)	338 (RDW, NRDW)	408 (RDW, NRDW)	132 [114] (RDW, NRDW)	61 [59] (RDW, NRDW)
Mercury	NA	NA	NA	< 0.2 U [< 0.2 U]	NA [NA]
Nickel	NA	NA	NA	< 5 U [< 5 U]	NA [NA]
Silver	NA	NA	NA	< 0.5 U [< 5 U]	NA [NA]
Vanadium	NA	NA	NA	< 5 U [< 5 U]	NA [NA]
Zinc	NA	NA	NA	< 5 U [< 5 U]	NA [NA]

TW-MD-05

Date	10/3/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	4	5	5	5
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**11,500 (RDW, NRDW, NRHBDW)**	**13,000 (RDW, NRDW, NRHBDW)**	**9,240 (RDW, NRDW, NRHBDW)**	**8,210 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	356 (RDW, NRDW)	400 (RDW, NRDW)	313 (RDW, NRDW)	287 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	586,000 (RDW, NRDW, GSI)	784,000 (RDW, NRDW, GSI)	638,000 (RDW, NRDW, GSI)	740,000 (RDW, NRDW, GSI)

MWF12-02 (Note 8)

Date	10/24/2017	10/3/2018	10/7/2019	10/13/2020
Inorganics				
Manganese	808 (RDW, NRDW)	292 (RDW, NRDW)	330 (RDW, NRDW)	868 [1,000] (RDW, NRDW)

MWF12-01

Date	10/24/2017		10/3/2018	10/13/2020	10/18/2021
Inorganics					
Manganese	**17,800 (RDW, NRDW, GSI, NRHBDW)**		NA	190 (RDW, NRDW)	150 [142] (RDW, NRDW)
Manganese (dissolved)	NA		NA	194 (RDW, NRDW)	140 [142] (RDW, NRDW)

MWF12-01R

MWW01-SEN04

Date	10/3/2018	10/9/2019	10/13/2020	10/15/2021
Inorganics				
Arsenic	5 [5]	20 (RDW, NRDW, GSI)	5	6
Chromium	< 5 U [< 5 U]	190 (RDW, NRDW)	< 5 U	< 5 U
Copper	< 5 U [< 5 U]	174 (GSI)	9	< 5 U
Iron	**14,500 (RDW, NRDW, NRHBDW)**	**190,000 (RDW, NRDW, NRHBDW)**	**20,300 (RDW, NRDW, NRHBDW)**	**17,000 (RDW, NRDW, NRHBDW)**
Lead	4 [3] (RDW, NRDW)	1,700 (RDW, NRDW, GSI)	15 (RDW, NRDW, GSI)	4 (RDW)
Manganese	370 [369] (RDW, NRDW)	**2,520 (RDS, NRDW, NRHBDW)**	769 (RDW, NRDW)	686 (RDW, NRDW)
Mercury	< 0.2 U [< 0.2 U]	0.4 (GSI)	< 0.2 U	< 0.2 U
Nickel	< 5 U [< 5 U]	111 (RDW, NRDW, GSI)	< 5 U	< 5 U
Silver	< 0.5 U [< 0.5 U]	< 5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U [< 5 U]	62 (RDW, NRDW, GSI)	< 5 U	< 5 U
Zinc	< 5 U [< 5 U]	191 (GSI)	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	580,000 (RDW, NRDW, GSI)	1,000,000 (RDW, NRDW, GSI)	1,360,000 (RDW, NRDW, GSI)	1,320,000 (RDW, NRDW, GSI)

MWW10-SEN02

Date	10/5/2018	10/8/2019	10/16/2020	10/12/2021
Inorganics				
Arsenic	7	9	< 2 U	< 2 U
Chromium	53 (GSI)	96 (GSI)	9	6
Copper	54 (GSI)	58 (GSI)	< 5 U	< 5 U
Iron	**21,200 (RDW, NRDW, NRHBDW)**	**20,600 (RDW, NRDW, NRHBDW)**	NA	100
Lead	12 (RDW, NRDW)	9 (RDW, NRDW)	< 3 U	< 3 U
Manganese	563 (RDW, NRDW)	284 (RDW, NRDW)	< 5 U	< 5 U
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	0.4 (GSI)
Nickel	128 (RDW, NRDW, GSI)	105 (RDW, NRDW, GSI)	12	9
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	21 (RDW)	22 (RDW)	< 5 U	< 5 U
Zinc	51	57	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	NA	1,280,000 (RDW, NRDW, GSI)	NA	934,000 (RDW, NRDW, GSI)

TW-MD-06

Date	10/4/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	10	7	7	7
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**24,900 (RDW, NRDW, NRHBDW)**	**9,570 (RDW, NRDW, NRHBDW)**	**5,200 (RDW, NRDW, NRHBDW)**	**9,940 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	947 (RDW, NRDW)	435 (RDW, NRDW)	276 (RDW, NRDW)	419 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	9	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	1,080,000 (RDW, NRDW, GSI)	684,000 (RDW, NRDW, GSI)	678,000 (RDW, NRDW, GSI)	730,000 (RDW, NRDW, GSI)

MWW01-SEN03

Date	10/5/2018	10/10/2019	10/15/2020	10/12/2021
Inorganics				
Arsenic	8	2	4	5
Chromium	29 (GSI)	< 5 U	< 5 U	8
Copper	18 (GSI)	< 5 U	< 5 U	10
Iron	**21,100 (RDW, NRDW, NRHBDW)**	1,020 (RDW, NRDW)	**9,430 (RDW, NRDW, NRHBDW)**	**11,400 (RDW, NRDW, NRHBDW)**
Lead	11 (RDW, NRDW)	< 3 U	< 3 U	< 3 U
Manganese	477 (RDW, NRDW)	279 (RDW, NRDW)	195 (RDW, NRDW)	260 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	0.3 (GSI)
Nickel	23	< 5 U	< 5 U	8
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	7 (RDW)	< 5 U	< 5 U	< 5 U
Zinc	27	< 5 U	< 5 U	7
Manganese (dissolved)	NA	NA	NA	271 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	1,110,000 (RDW, NRDW, GSI)	704,000 (RDW, NRDW, GSI)	846,000 (RDW, NRDW, GSI)	1,010,000 (RDW, NRDW, GSI)

TW-MD-07

Date	10/4/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	< 2 U	4	3	< 2 U
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**23,900 (RDW, NRDW, NRHBDW)**	**10,000 (RDW, NRDW, NRHBDW)**	**24,300 (RDW, NRDW, NRHBDW)**	**34,600 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	201 (RDW, NRDW)	378 (RDW, NRDW)	470 (RDW, NRDW)	547 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	5
Miscellaneous				
Total dissolved solids	958,000 (RDW, NRDW, GSI)	1,220,000 (RDW, NRDW, GSI)	1,820,000 (RDW, NRDW, GSI)	3,040,000 (RDW, NRDW, GSI)

MWOS-01

Date	10/16/2020	10/12/2021
Inorganics		
Manganese	703 (RDW, NRDW)	78 (RDW, NRDW)
Manganese (dissolved)	683 (RDW, NRDW)	67 (RDW, NRDW)

MWOS-02

Date	10/16/2020	10/12/2021
Inorganics		
Manganese	1,210 (RDW, NRDW)	530 (RDW, NRDW)
Manganese (dissolved)	298 (RDW, NRDW)	337 (RDW, NRDW)

TW-MD-04

Date	10/3/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	2	6	3	4
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**21,900 (RDW, NRDW, NRHBDW)**	**13,800 (RDW, NRDW, NRHBDW)**	**11,800 (RDW, NRDW, NRHBDW)**	**11,700 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	1,160 (RDW, NRDW)	571 (RDW, NRDW)	440 (RDW, NRDW)	462 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	1,700,000 (RDW, NRDW, GSI)	792,000 (RDW, NRDW, GSI)	658,000 (RDW, NRDW, GSI)	788,000 (RDW, NRDW, GSI)

MWW1-15

Date	10/3/2018	10/8/2019	10/15/2020	10/15/2021
Inorganics				
Arsenic	2	2	2	3
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**9,070 (RDW, NRDW, NRHBDW)**	5,040 (RDW, NRDW)	**6,910 (RDW, NRDW, NRHBDW)**	**11,200 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	236 (RDW, NRDW)	207 (RDW, NRDW)	216 (RDW, NRDW)	305 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	< 5 U
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	< 5 U
Miscellaneous				
Total dissolved solids	794,000 (RDW, NRDW, GSI)	724,000 (RDW, NRDW, GSI)	654,000 (RDW, NRDW, GSI)	1,110,000 (RDW, NRDW, GSI)

MWW1-04

Date	10/25/2017	10/4/2018	10/7/2019	10/16/2020	10/13/2021
Inorganics					
Vanadium (dissolved)	45 (RDW, GSI)	16 [15] (RDW)	8 (RDW)	6 (RDW)	< 5 U
Miscellaneous					
Total dissolved solids	NA	NA	NA	NA	328,000

TW-MD-01

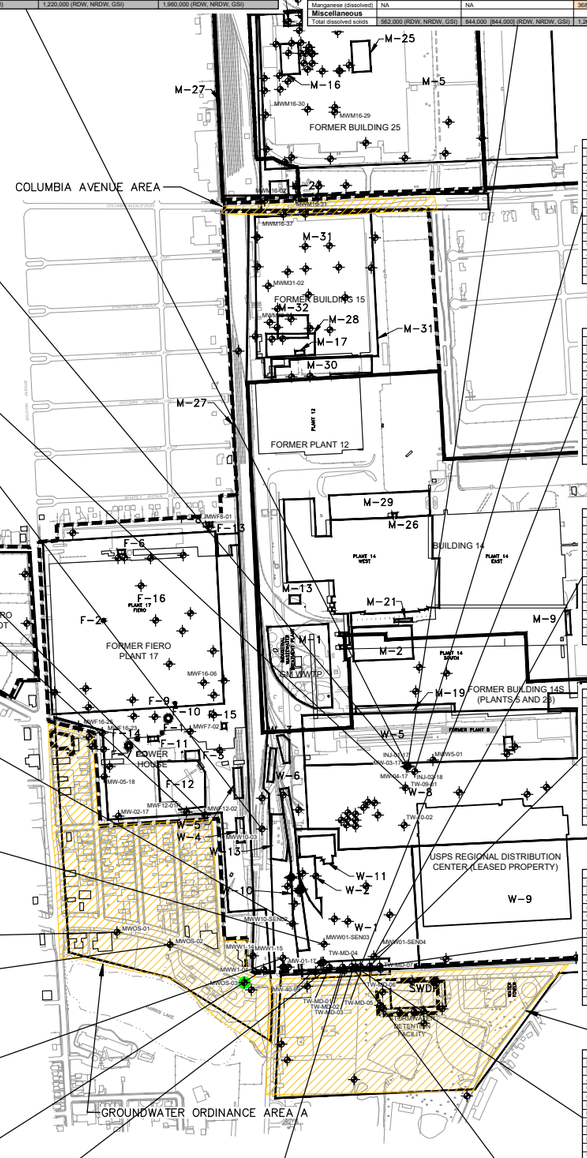
Date	10/3/2018	10/8/2019	10/15/2020	10/14/2021
Inorganics				
Arsenic	< 2 U	2	2	< 2 U
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**10,600 (RDW, NRDW, NRHBDW)**	**7,050 (RDW, NRDW, NRHBDW)**	**8,480 (RDW, NRDW, NRHBDW)**	1,260 (RDW, NRDW)
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	1,000 (RDW, NRDW)	867 (RDW, NRDW)	610 (RDW, NRDW)	725 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	7	12
Silver	< 0.5 U	0.7 (GSI)	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	< 5 U	< 5 U	8
Miscellaneous				
Total dissolved solids	630,000 (RDW, NRDW, GSI)	680,000 (RDW, NRDW, GSI)	616,000 (RDW, NRDW, GSI)	1,300,000 (RDW, NRDW, GSI)

TW-MD-02

Date	10/3/2018	10/8/2019	10/15/2020	10/14/2021
Inorganics				
Arsenic	8	6	5	5
Chromium	< 5 U	< 5 U	< 5 U	< 5 U
Copper	< 5 U	< 5 U	< 5 U	< 5 U
Iron	**14,300 (RDW, NRDW, NRHBDW)**	**11,200 (RDW, NRDW, NRHBDW)**	**13,200 (RDW, NRDW, NRHBDW)**	**11,300 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	< 3 U	< 3 U	< 3 U
Manganese	747 (RDW, NRDW)	501 (RDW, NRDW)	854 (RDW, NRDW)	912 (RDW, NRDW)
Mercury	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Nickel	< 5 U	< 5 U	< 5 U	10
Silver	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vanadium	< 5 U	< 5 U	< 5 U	< 5 U
Zinc	< 5 U	8	< 5 U	7
Miscellaneous				
Total dissolved solids	620,000 (RDW, NRDW, GSI)	728,000 (RDW, NRDW, GSI)	774,000 (RDW, NRDW, GSI)	1,270,000 (RDW, NRDW, GSI)

TW-MD-03

Date	10/3/2018	10/8/2019	10/14/2020	10/14/2021
Inorganics				
Arsenic	5	NA	3	< 2 U
Chromium	< 5 U	NA	< 5 U	< 5 U
Copper	< 5 U	NA	< 5 U	< 5 U
Iron	**18,000 (RDW, NRDW, NRHBDW)**	2,030 (RDW, NRDW)	**8,580 (RDW, NRDW, NRHBDW)**	**8,480 (RDW, NRDW, NRHBDW)**
Lead	< 3 U	NA	< 3 U	< 3 U
Manganese	820 (RDW, NRDW)	NA	288 (RDW, NRDW)	741 (RDW, NRDW)
Mercury	< 0.2 U	NA	< 0.2 U	< 0.2 U
Nickel	< 5 U	NA	< 5 U	< 5 U
Silver	< 0.5 U	NA	< 0.5 U	< 0.5 U
Vanadium	< 5 U	NA	< 5 U	< 5 U
Zinc	< 5 U	NA	< 5 U	6
Manganese (dissolved)	NA	250 (RDW, NRDW)	NA	NA
Miscellaneous				
Total dissolved solids	1,180,000 (RDW, NRDW, GSI)	780,000 (RDW, NRDW, GSI)	694,000 (RDW, NRDW, GSI)	840,000 (RDW, NRDW, GSI)



NOTES:

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
2. ALL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
3. DUPLICATE ANALYSES ARE PRESENTED IN BRACKETS.
4. <0.25 – CONSTITUENT NOT DETECTED ABOVE LABORATORY REPORTING LIMITS
5. NA – NOT ANALYZED
6. U – COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT
7. ANALYTICAL DATA DATING BACK TO OCTOBER 2017 PRESENTED ON THIS FIGURE. ALL HISTORICAL DATA PRESENTED IN ATTACHMENT 3.
8. MWW5-01 AND MWF12-02 WERE DAMAGED OR DESTROYED AND NOT SAMPLED IN 2021.
9. DATABOXES PRESENTED ON THIS FIGURE INCLUDE ONLY THOSE PARAMETERS WHERE REGULATORY EXCEEDANCES OF PROMULGATED CRITERIA EXISTS ANYTIME FROM 2017–2021.
10. pH RDW AND NRDW CRITERIA REPRESENT AESTHETIC DRINKING WATER VALUES AS REQUIRED BY SECTION 20120A(5) OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED (NREPA)..
11. OTHER CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: GROUNDWATER: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, DECEMBER 21, 2020.

	Units	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value
Inorganics					
Arsenic	ug/L	10	10	10	--
Chromium	ug/L	100	100	11	--
Copper*	ug/L	1,000 (E)	1,000 (E)	13	4,000
Iron*	ug/L	300 (E)	300 (E)	--	5,600
Lead	ug/L	4	4	14	--
Manganese*	ug/L	50 (E)	50 (E)	1,300	2,500
Mercury	ug/L	2	2	0.0013	--
Nickel	ug/L	100	100	73	--
Silver	ug/L	34	98	0.2	--
Vanadium	ug/L	4.5	62	27	--
Zinc	ug/L	2,400	5,000 (E)	170	--
Inorganics-Filtered					
Iron (dissolved)	ug/L	300	300	--	5,600
Manganese (dissolved)*	ug/L	50 (E)	50 (E)	1,300	2,500
Miscellaneous					
Total dissolved solids (TDS)	ug/L	500,000 (E)	500,000 (E)	500,000	--

EGLE CRITERIA NOTES:

1. E - CRITERION IS THE AESTHETIC DRINKING WATER VALUE, AS REQUIRED BY SECTION 20120A(5) OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED (NREPA).

0 500' 1000'
GRAPHIC SCALE

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

GROUNDWATER ANALYTICAL SUMMARY INORGANICS AND TOTAL DISSOLVED SOLIDS OCTOBER 2021

ARCADIS

FIGURE
3B

LEGEND:

- APPROXIMATE GENERAL MOTORS (GM) COMPANY, LLC PROPERTY BOUNDARY
- APPROXIMATE RACER TRUST (RACER) PROPERTY BOUNDARY
- MWM1 — GROUNDWATER MONITORING WELL LOCATION
- FENCED AREA
- M-5 — APPROXIMATE AOI (AREA OF INTEREST) AREA AND IDENTIFICATION NUMBER
- OFF-SITE GROUNDWATER ORDINANCE AREA

MICHIGAN PART 201 GENERIC CRITERIA FOR GROUNDWATER

RDW – RESIDENTIAL DRINKING WATER CRITERIA
NRDW – NONRESIDENTIAL DRINKING WATER CRITERIA
GSI – GROUNDWATER SURFACE WATER INTERFACE CRITERIA

- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NONRESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO GROUNDWATER SURFACE WATER INTERFACE CRITERIA
- NO EXCEEDANCES OF APPLICABLE CRITERIA FROM SAMPLING EVENTS BETWEEN 2017–2021

NOTES:

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
2. ALL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
3. DUPLICATE ANALYSES ARE PRESENTED IN BRACKETS.
4. <0.25 – CONSTITUENT NOT DETECTED ABOVE LABORATORY REPORTING LIMITS
5. NA – NOT ANALYZED
6. Y – ELEVATED REPORTING LIMIT DUE TO HIGH TARGET CONCENTRATIONS
7. U – COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT
8. ANALYTICAL DATA DATING BACK TO OCTOBER 2017 PRESENTED ON THIS FIGURE. ALL HISTORICAL DATA PRESENTED IN ATTACHMENT 3.
9. MWW5–01 AND MWF12–02 WERE DAMAGED OR DESTROYED AND NOT SAMPLED IN 2021.
10. DATABOXES PRESENTED ON THIS FIGURE INCLUDE ONLY THOSE PARAMETERS WHERE REGULATORY EXCEEDANCES OF PROMULGATED CRITERIA EXISTS ANYTIME FROM 2017–2021.
11. OTHER CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: GROUNDWATER: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, DECEMBER 21, 2020.

MWW01-SEN04

Date	10/3/2018	10/9/2019	10/13/2020	10/15/2021
Total PCBs	0.2 [0.1] (GSI)	15 Y (RDW, NRDW, GSI)	0.2 (GSI)	0.1

MWW1-04

Date	10/25/2017	10/4/2018	10/7/2019	10/16/2020	10/13/2021
Total PCBs	0.1	0.1 [< 0.1 U]	0.2 (GSI)	0.2 (GSI)	<0.1 U

TW-MD-06

Date	10/4/2018	10/9/2019	10/14/2020	10/14/2021
Total PCBs	< 0.1 U	0.2 (GSI)	0.6 (RDW, NRDW, GSI)	0.9 (RDW, NRDW, GSI)

	Units	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface
PCBs				
Total PCBs	ug/L	0.5	0.5	0.2

0 500' 1000'
GRAPHIC SCALE

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

GROUNDWATER ANALYTICAL SUMMARY POLYCHLORINATED BIPHENYLS (PCBs) OCTOBER 2021

ARCADIS

FIGURE
3C

PIC: JEFF BARRETT PM: BRAD SAUNDERS TM: LEXI CRISP
C:\Users\roberlander\OneDrive - ARCADIS\BIM 360 Docs\AUS-RACER TRUST-PNC-PONTIAC Michigan\2021\01-In Progress\01-DWG\FIG3C-PCB-DATABOX-OCT 2021.DWG
1/3/2022 2:59 PM BY: OBERLANDER, ROSEANNE
XREFS: IMAGES: PROJECTNAME: ---- PROJECT NUMBER: 30075936
X-BASE-21
PNC-BDR-F-LD
LAYOUT: 3C SAVED: 1/3/2022 2:59 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED:

MWF12-02 (Note 9)

Date	9/21/2016	10/24/2017	10/3/2018	10/7/2019	10/13/2020
Inorganics					
Manganese	**3,910 (RDW, NRDW, GSI, NRHBDW)**	808 (RDW, NRDW)	292 (RDW, NRDW)	330 (RDW, NRDW)	868 [1,000] (RDW, NRDW)

	MWF12-01		MWF12-01R	
Date	10/24/2017	10/3/2018	10/13/2020	10/18/2021
VOCs				
1,4-Dioxane	< 3 U	5	107 (RDW)	83 [86] (RDW)
Inorganics				
Manganese	**17,800 (RDW, NRDW, GSI, NRHBDW)**	NA	190 (RDW, NRDW)	150 [142] (RDW, NRDW)
Manganese (dissolved)	**NA**	NA	194 (RDW, NRDW)	140 [142] (RDW, NRDW)

MWF16-23

Date	10/1/2018	10/7/2019	10/15/2020	10/13/2021
VOCs				
Trichloroethene	*15 (RDW, NRDW, RFSSSOG, RFSSBASE)*	*20 (RDW, NRDW, RFSSSOG, RFSSBASE)*	*21 (RDW, NRDW, RFSSSOG, RFSSBASE)*	*18 (RDW, NRDW, RFSSSOG, RFSSBASE)*

MW-02-17

Date	10/2/2018	10/7/2019	10/13/2020	10/19/2021
VOCs				
1,4-Dioxane	21 (RDW)	29 (RDW)	30 (RDW)	5
Tetrachloroethene	6 (RDW, NRDW)	10 (RDW, NRDW)	3	5 (RDW, NRDW)
Trichloroethene	2	4	2	7 (RDW, NRDW)

MW-40-99

Date	10/26/2017	10/3/2018	10/9/2019	10/15/2020	10/15/2021
VOCs					
1,4-Dioxane	NA	< 1 U	11 (RDW)	6 [9] (RDW)	1 [1]

MW-01-17

Date	10/3/2018	10/8/2019	10/15/2020	10/15/2021
VOCs				
1,4-Dioxane	< 1 U	< 1 U	8 (RDW)	2

MWOS-02

Date	10/16/2020	10/12/2021
Inorganics		
Manganese	1,210 (RDW, NRDW)	530 (RDW, NRDW)
Manganese (dissolved)	298 (RDW, NRDW)	337 (RDW, NRDW)

MWOS-01

Date	10/1/2018	10/7/2019	10/16/2020	10/12/2021
Inorganics				
Manganese	NA	NA	703 (RDW, NRDW)	78 (RDW, NRDW)
Manganese (dissolved)	NA	NA	683 (RDW, NRDW)	67 (RDW, NRDW)

MWW1-04

Date	10/25/2017	10/4/2018	10/7/2019	10/16/2020	10/13/2021
Field Parameters					
pH	11.15 (RDW, NRDW, GSI)	11.46 (RDW, NRDW, GSI)	11.31 (RDW, NRDW, GSI)	11.55 (RDW, NRDW, GSI)	9.61 (RDW, NRDW, GSI)
PCBs					
Total PCBs	0.1	0.1 [< 0.1 U]	0.2 (GSI)	0.2 (GSI)	< 0.1 U
Inorganics					
Vanadium	45 (RDW, GSI)	16 [15] (RDW)	8 (RDW)	6 (RDW)	< 5 U

MWW16-37

Date	10/23/2017	10/2/2018	10/10/2019	10/16/2020	10/13/2021
VOCs					
Vinyl chloride	4 (RDW, NRDW, RVI)	3 (RDW, NRDW, RVI)	2 (RDW, NRDW)	1 [1]	2 [2] (RDW, NRDW)

MWW16-31

Date	10/23/2017	10/2/2018	10/10/2019	10/16/2020	10/12/2021
VOCs					
Vinyl chloride	3 (RDW, NRDW, RVI)	< 1 U	2 [2] (RDW, NRDW)	2 (RDW, NRDW)	< 1 U

TW-MD-05

Date	10/3/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Iron	**11,500 (RDW, NRDW, NRHBDW)**	**13,000 (RDW, NRDW, NRHBDW)**	**9,240 (RDW, NRDW, NRHBDW)**	**8,210 (RDW, NRDW, NRHBDW)**
Manganese	356 (RDW, NRDW)	400 (RDW, NRDW)	313 (RDW, NRDW)	287 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	586,000 (RDW, NRDW, GSI)	784,000 (RDW, NRDW, GSI)	638,000 (RDW, NRDW, GSI)	740,000 (RDW, NRDW, GSI)

TW-MD-01

Date	10/3/2018	10/8/2019	10/15/2020	10/14/2021
Inorganics				
Iron	**10,800 (RDW, NRDW, NRHBDW)**	**7,050 (RDW, NRDW, NRHBDW)**	**8,480 (RDW, NRDW, NRHBDW)**	1,260 (RDW, NRDW)
Manganese	1,000 (RDW, NRDW)	867 (RDW, NRDW)	610 (RDW, NRDW)	725 (RDW, NRDW)
Silver	< 0.5 U	0.7 (GSI)	< 0.5 U	< 0.5 U
Miscellaneous				
Total dissolved solids	630,000 (RDW, NRDW, GSI)	680,000 (RDW, NRDW, GSI)	616,000 (RDW, NRDW, GSI)	1,300,000 (RDW, NRDW, GSI)

TW-MD-02

Date	10/3/2018	10/8/2019	10/15/2020	10/14/2021
Inorganics				
Iron	**14,300 (RDW, NRDW, NRHBDW)**	**11,200 (RDW, NRDW, NRHBDW)**	**13,200 (RDW, NRDW, NRHBDW)**	**11,300 (RDW, NRDW, NRHBDW)**
Manganese	747 (RDW, NRDW)	501 (RDW, NRDW)	854 (RDW, NRDW)	912 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	620,000 (RDW, NRDW, GSI)	728,000 (RDW, NRDW, GSI)	774,000 (RDW, NRDW, GSI)	1,270,000 (RDW, NRDW, GSI)

TW-MD-03

Date	10/3/2018	10/8/2019	10/14/2020	10/14/2021
Inorganics				
Iron	**18,000 (RDW, NRDW, NRHBDW)**	2,030 (RDW, NRDW)	**8,580 (RDW, NRDW, NRHBDW)**	**8,480 (RDW, NRDW, NRHBDW)**
Manganese	820 (RDW, NRDW)	NA	288 (RDW, NRDW)	741 (RDW, NRDW)
Manganese (dissolved)	NA	250 (RDW, NRDW)	NA	NA
Miscellaneous				
Total dissolved solids	1,180,000 (RDW, NRDW, GSI)	780,000 (RDW, NRDW, GSI)	694,000 (RDW, NRDW, GSI)	840,000 (RDW, NRDW, GSI)

TW-MD-06

Date	10/4/2018	10/9/2019	10/14/2020	10/14/2021
PCBs				
Total PCBs	< 0.1 U	0.2 (GSI)	0.6 (RDW, NRDW, GSI)	0.9 (RDW, NRDW, GSI)
Inorganics				
Iron	**24,900 (RDW, NRDW, NRHBDW)**	**9,570 (RDW, NRDW, NRHBDW)**	**8,200 (RDW, NRDW, NRHBDW)**	**9,840 (RDW, NRDW, NRHBDW)**
Manganese	947 (RDW, NRDW)	435 (RDW, NRDW)	276 (RDW, NRDW)	419 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	1,080,000 (RDW, NRDW, GSI)	884,000 (RDW, NRDW, GSI)	678,000 (RDW, NRDW, GSI)	730,000 (RDW, NRDW, GSI)

TW-MD-07

Date	10/4/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Iron	**23,900 (RDW, NRDW, NRHBDW)**	**10,000 (RDW, NRDW, NRHBDW)**	**24,300 (RDW, NRDW, NRHBDW)**	**34,600 (RDW, NRDW, NRHBDW)**
Manganese	201 (RDW, NRDW)	378 (RDW, NRDW)	470 (RDW, NRDW)	547 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	958,000 (RDW, NRDW, GSI)	1,220,000 (RDW, NRDW, GSI)	1,820,000 (RDW, NRDW, GSI)	3,040,000 (RDW, NRDW, GSI)

TW-MD-04

Date	10/3/2018	10/9/2019	10/14/2020	10/14/2021
Inorganics				
Iron	**21,900 (RDW, NRDW, NRHBDW)**	**13,800 (RDW, NRDW, NRHBDW)**	**11,800 (RDW, NRDW, NRHBDW)**	**11,700 (RDW, NRDW, NRHBDW)**
Manganese	1,160 (RDW, NRDW)	571 (RDW, NRDW)	440 (RDW, NRDW)	462 (RDW, NRDW)
Miscellaneous				
Total dissolved solids	1,700,000 (RDW, NRDW, GSI)	792,000 (RDW, NRDW, GSI)	658,000 (RDW, NRDW, GSI)	788,000 (RDW, NRDW, GSI)

LEGEND:

- APPROXIMATE GENERAL MOTORS (GM) COMPANY, LLC PROPERTY BOUNDARY
- APPROXIMATE RACER TRUST (RACER) PROPERTY BOUNDARY
- MWM1 — GROUNDWATER MONITORING WELL LOCATION
- FENCED AREA
- M-5 — APPROXIMATE AOI (AREA OF INTEREST) AREA AND IDENTIFICATION NUMBER
- OFF-SITE GROUNDWATER ORDINANCE AREA

MICHIGAN PART 201 GENERIC CRITERIA AND FIERO SITE SPECIFIC CRITERIA FOR GROUNDWATER

- RDW – RESIDENTIAL DRINKING WATER CRITERIA
- NRDW – NONRESIDENTIAL DRINKING WATER CRITERIA
- GSI – GROUNDWATER SURFACE WATER INTERFACE CRITERIA
- RVI – RESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS
- RFSSBASE – RESIDENTIAL FIERO SSVIAC BASEMENT
- RFSSSOG – RESIDENTIAL FIERO SSVIAC SLAB ON GRADE
- NRHBDW – NONRESIDENTIAL HEALTH BASED DRINKING WATER

- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NONRESIDENTIAL DRINKING WATER CRITERIA
- CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO GROUNDWATER SURFACE WATER INTERFACE CRITERIA
- **BOLD** VALUE = CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO NONRESIDENTIAL HEALTH BASED DRINKING WATER
- UNDERLINED VALUE = CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS
- *(ITALIC)* CONSTITUENT CONCENTRATION EXCEEDS OR IS EQUAL TO RESIDENTIAL FIERO SSVIAC BASEMENT AND/OR RESIDENTIAL FIERO SSVIAC SLAB ON GRADE CRITERIA
- NO EXCEEDANCES OF APPLICABLE CRITERIA FROM SAMPLING EVENTS BETWEEN 2017–2021

NOTES:

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
2. ALL CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (ug/L).
3. DUPLICATE ANALYSES ARE PRESENTED IN BRACKETS.
4. <0.25 – CONSTITUENT NOT DETECTED ABOVE LABORATORY REPORTING LIMITS
5. NA – NOT ANALYZED
6. VOC – VOLATILE ORGANIC COMPOUND
7. U – COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT
8. ANALYTICAL DATA DATING BACK TO OCTOBER 2017 PRESENTED ON THIS FIGURE. ALL HISTORICAL DATA PRESENTED IN ATTACHMENT 3.
9. MWW5–01 AND MWF12–02 WERE DAMAGED OR DESTROYED AND NOT SAMPLED IN 2021.
10. DATABOXES PRESENTED ON THIS FIGURE INCLUDE ONLY THOSE PARAMETERS WHERE REGULATORY EXCEEDANCES OF PROMULGATED CRITERIA EXISTS ANYTIME FROM 2017–2021 PER EACH LOCATION.
11. pH RDW AND NRDW CRITERIA REPRESENT AESTHETIC DRINKING WATER VALUES AS REQUIRED BY SECTION 20120A(5) OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED (NREPA).
12. MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) DEVELOPED SITE–SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA (SSVIAC) FOR THE FORMER FIERO ASSEMBLY, APRIL 21, 2020.
13. OTHER CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: GROUNDWATER: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, DECEMBER 21, 2020.

.

	Units	Residential Drinking Water	Nonresidential Drinking Water	Groundwater Surface Water Interface	Nonresidential Health Based Drinking Water Value	Residential Volatilization to Indoor Air Pathway Screening Levels	Res Fiero SSVIAC SOG*	Res Fiero SSVIAC BASE*
Field Parameters								
pH	SU	6.5 - 8.5 (E)	6.5 - 8.5 (E)	6.5 - 9.0	--	--	--	--
PCBs								
Total PCBs	ug/L	0.5	0.5	0.2	--	--	--	--
Volatile Organics								
1,4-Dioxane	ug/L	7.2	350	280		56,000	43,000	22,00
Tetrachloroethene	ug/L	5	5	60	--	130	250	130
Trichloroethene	ug/L	5	5	200	--	10	15	8.1
Vinyl Chloride	ug/L	2	2	13		2.1	2.2	1.2
Inorganics								
Iron	ug/L	300 (E)	300 (E)	--	5,600	--	--	--
Manganese	ug/L	50 (E)	50 (E)	1,300	2,500	--	--	--
Silver	ug/L	34	98	0.2	--	--	--	--
Vanadium	ug/L	4.5	62	27	--	--	--	--
Inorganics-Filtered								
Manganese (dissolved)*	ug/L	50 (E)	50 (E)	1,300	2,500	--	--	--
Miscellaneous								
Total dissolved solids (TDS)	ug/L	500,000 (E)	500,000 (E)	500,000	--	--	--	--

EGLE CRITERIA NOTES:

1. * - ONLY APPLIES TO WELLS ON FORMER FIERO PROPERTY.
2. E - CRITERION IS THE AESTHETIC DRINKING WATER VALUE, AS REQUIRED BY SECTION 20120A(5) OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED (NREPA).

0 500' 1000'
GRAPHIC SCALE

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

GROUNDWATER ANALYTICAL SUMMARY PROPERTY BOUNDARIES AND SELECTED OFFSITE WELLS OCTOBER 2021

ARCADIS

FIGURE 4

PIC: JEFF BARRETT PM: BRAD SAUNDERS TM: LEXI CRISP
C:\Users\roberlander\OneDrive - ARCADIS\BIM 360 Docs\AUS-RACER TRUST-PNC-PONTIAC Michigan\2021101-In Progress\01-DWG\FIG4-PROP-BOUND-DATABOX-OCT 2021.DWG LAYOUT: 4 SAVED: 1/13/2022 11:17 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ----
PLOTTED: 1/13/2022 11:18 AM BY: OBERLANDER, ROSEANNE PROJECTNAME: ---- PROJECT NUMBER: 30075936
XREFS: IMAGES:
X-BASE-21
PNC-BDR-F-LD

Appendix A

2009 GMP Request and USEPA Approval

Transmitted Via Email

October 30, 2009

Mr. Nate Nemani
United States Environmental Protection Agency
Region V, LU-9J
77 West Jackson Street
Chicago, IL 60604-3590
LU-9J

Re: GM Pontiac North Campus – Semi-Annual Groundwater Monitoring Program Proposed Modifications

Dear Mr. Nemani:

The purpose of this letter is to request approval from the United States Environmental Protection Agency (U.S. EPA) to modify the Groundwater Monitoring Program (GMP) for the General Motors Pontiac North Campus Facility (Facility) located in Pontiac, Michigan.

GM Corporation filed for Chapter 11 protection on June 1, 2009 under the Bankruptcy Code. On July 10, 2009, GM Company (since renamed GM LLC) was created through the sale of certain GM Corporation assets pursuant to Section 363 of the Bankruptcy Code. General Motors Corporation (renamed MLC) remains in Chapter 11 bankruptcy protection and is managing the assets that were not sold to GM Company (now GM LLC). A portion of the Pontiac North Campus is part of GM LLC and a portion remains with MLC. GM LLC and MLC are jointly submitting this request until the facility separation discussions (e.g., utility splits) are completed and we have an agreement with U.S. EPA on managing the Corrective Action in the future.

Attachment A details the proposed changes to the GMP and provides supporting information. These include the elimination of select monitoring wells and parameters, a change in monitoring frequency and terminating the program after 2 additional years of sampling.

We are requesting U.S. EPA approval of the proposed modifications to the GMP provided in Attachment A, including termination of the program after an additional 2 years (ending in November 2011) if concentrations remain stable or decline. MLC and GM LLC feel that a 2 year timeframe is appropriate given the quantity of groundwater data that has been generated since 2001. Based on the extensive database of analytical data, and the observed stability of groundwater conditions at the Facility, the proposed modifications present a modest reduction in monitoring that will continue to demonstrate that the conditions at the Facility are adequately assessed.

The next semi-annual groundwater sampling event is scheduled for early December 2009. We would appreciate your expeditious review of these modifications so we can eliminate unnecessary sampling during the December monitoring event. To facilitate your review, GM LLC and MLC propose a conference call on Thursday November 5th or Friday November 6th, 2009 to discuss these proposed modifications to the Groundwater Monitoring Program. In the meantime, if you have any questions please feel free to contact the undersigned.

Sincerely,

Robert Hare
MLC Project Manager
248-225-3277

Jean Caufield
GM LLC Project Manager
313-506-9468

cc: John McKenna, ARCADIS
Gavin O'Neill, CRA
Francis Ramacciotti, ENVIRON

Attachment A
Proposed Modifications
Semi-Annual Groundwater Monitoring Program

On October 10, 2000, GM Corporation (now MLC) and the U.S. EPA entered into a Performance Based Corrective Action Agreement for the Pontiac North Campus Site. The Site encompasses approximately 595 acres in the northwest quadrant of the City of Pontiac. Groundwater samples have been collected from select monitoring wells on a semi-annual basis since 2002 as part of the GMP to demonstrate that constituent concentrations in groundwater are stable and that migration of contaminated groundwater is not occurring. The Groundwater Monitoring Program (GMP) was presented as part of the Environmental Indicators (EI) CA750 determination (ENVIRON, 2002). Since 2002, GM Corporation added several additional monitoring wells to the GMP at the request of the U.S. EPA. Following each monitoring event a report summarizing the results was prepared and submitted to U.S. EPA. Following the semi-annual sampling events of 2008, the groundwater monitoring program was evaluated to determine if modifications to the plan are warranted.

Two initial rounds of sampling were completed at each monitoring well that was installed as part of the RFI Work Plan (ENCORE, 2001). Monitoring wells included in the GMP have been sampled on a semi-annual basis since 2002. Additional wells were added to the GMP as additional RFI activities were completed or additional groundwater monitoring was required as a provision for completed Interim Measures (IM). When the analytical data from the semi-annual sampling appeared to be anomalous an additional groundwater sample was immediately collected from that individual well to verify the results for individual constituent(s). These confirmation samples are identified as a Partial Sample Event.

A comprehensive database of these analytical results has been developed over the past eight years. Even though groundwater at the Facility is not used as a drinking water source, analytical results were compared against both Michigan Department of Environmental Quality (MDEQ) Part 201 Residential Drinking Water criteria (RDW) and Industrial Drinking Water (IDW) criteria. Stable or reducing conditions have been observed in at least four sampling events in the analytical results at several locations included in the GMP.

This submittal proposes the following:

1) Elimination of select monitoring wells and parameters from the GMP,
2) Change the frequency of monitoring from semi-annual to annual; and
3) Implement the GMP for 2 more years and terminate it after that provided the data continue to show stable or decreasing trends.

The attached Table 1 provides an evaluation of each monitoring well in the semi-annual sampling program, and indicates modifications being proposed to the sample collection frequency and associated groundwater analysis.

SEMI-VOLATILE ORGANIC COMPOUNDS

Semi-volatile organic compounds (SVOCs) were analyzed for at the majority of the monitoring wells in the GMP. Two SVOCs were only detected above drinking water criteria in three monitoring wells, IWD7, MWW1-02 and MWW1-04. Bis (2-Ethylhexyl)phthalate was detected above the screening criteria once (January 2002) out of 16 sampling events at monitoring well IWD7 and once (October 2004) out of 14 sampling events at well MWW1-02 Bis (2-Ethylhexyl)phthalate is a common laboratory contaminant. Pentachlorophenol was detected above the screening criteria in monitoring well MWW1-04 four (November 2005, February 2006, May 2006, and November 2007) out of 15 samples collected. Based on this evaluation, it is proposed that SVOCs be removed from the analytical parameter list for the GMP.

SHALLOW MONITORING WELLS

For shallow monitoring wells (designated MW) at the Facility, 8 monitoring wells are proposed for elimination from the sampling program. Sample frequency for the remaining monitoring wells is proposed to be reduced from semi-annual to annual for two more years, ending in November 2011 (see Table 1A). The eight monitoring wells (MWD6, MWW1-02, MWW1-03, MWW1-06, MWF12-02, MWM16-05, MWM16-22, and MWM16-54) are proposed to be removed from the GMP because the analytical results have either not exceeded drinking water criteria, were non-detect, or if constituents were detected above criteria the concentrations have stabilized.

Monitoring wells located downgradient of light non-aqueous phase liquid (LNAPL) Area Nos. 1, 2, 3, and 9/10 will continue to be sampled to monitor the upgradient LNAPL areas. Monitoring wells MW40-99 and MWW9-01 are all located downgradient of LNAPL areas. These monitoring locations have not exhibited elevated concentrations of volatile organic compounds (VOCs), PCBs, or site specific parameter list (SSPL) metals and detected concentrations have stabilized. However, they will continue to be sampled to monitor the upgradient LNAPL areas. We propose that these wells be sampled annually instead of the current semi-annual monitoring.

For shallow monitoring wells that have a limited number of sample events (MWW5-01, MWM16-21, MWM16-43, and MWW8-65) the sample frequency will be reduced to annually. Some of these wells have only been sampled three to five times, thus precluding observation of contaminant concentration trends.

Five shallow monitoring wells have been sampled for total dioxins (MWW1-02, MWW1-03, MWW1-04, MWW1-06, and MW40-99). Exceedances of the screening criteria were observed at MWW1-03, MWW1-04 and MW40-99. Dioxins have been reported exceeding criteria three times (15 total samples collected) in monitoring well MWW1-03 and have not been detected above criteria since May 2008. Following the detection of dioxins exceeding criteria in May 2008 a confirmatory sample was collected and the results were non-detect. Dioxins have been reported exceeding criteria once (15 total samples) in monitoring well MWW1-04 and have not been reported exceeding criteria since May 2006. Dioxins have been reported exceeding criteria twice (14 total samples) in monitoring well MW40-99 and have not been reported exceeding criteria since May 2007. We are proposing that dioxins be removed from the sampling program due to the low levels observed and stability of the analytical results.

INTERMEDIATE MONITORING WELLS

We are proposing that intermediate monitoring wells (designated IW) at the Facility be removed from the groundwater sampling program, as shown on Table 1B. Groundwater samples have been collected from monitoring well IWP5 a total of 15 times. Thallium (dissolved) was detected in this well above screening criteria in January 2001 and has not exceeded the screening criteria since (15 sample events). Acetone has also been detected above the screening criteria; however it was reported in the RFI Report (ENCORE 2002) that it has been documented that bentonite pellets, which were used in the well construction, have been known to contain acetone. Acetone is also a common laboratory contaminant Acetone has not been detected above criteria since November 2002 (12 sample events). Groundwater samples have also been collected 15 times from monitoring well IWD7. Bis (2-Ethylhexyl)phthalate, lead, and vanadium were detected above the screening criteria once in January 2002. Since that time these three constituents have not been detected above screening criteria (13 sample events). Arsenic was detected twice above screening criteria (May and November 2007 sampling events) in this well. In both subsequent sampling events (October 2007 and November 2008) arsenic did not exceed the screening criteria.

Groundwater samples have never been collected from monitoring well IWP2, due to insufficient water in the well to collect a sample. For this reason, this well should be removed from the GMP and abandoned.

DEEP MONITORING WELLS

We are proposing that deep monitoring wells (designated GW and DW) be removed from the groundwater sampling program (Table 1C). As part of the original RFI activities, groundwater monitoring wells were installed into two deeper groundwater bearing units (outwash deposits) at the Facility. Deep monitoring wells designated as GW (e.g. GWD8) were installed between 878 and 893 feet above mean sea level (AMSL) in a sand zone (upper outwash deposits). The depth of the GW wells range from 55 to 107 feet below ground surface. Monitoring wells were also installed in a deeper groundwater bearing zone (lower outwash deposits) to determine if a downward vertical hydraulic gradient existed at the Facility and if constituents detected in the shallower water bearing units had migrated to the lower water bearing units. These monitoring wells installed in the lower outwash deposits were designated as DW (e.g. DWD10) and were installed between 808 and 858 AMSL in a sand and gravel zone. The depth of the DW wells range from 115 to 150 feet below ground surface.

Chromium has been detected twice and vanadium once exceeding criteria in monitoring well GWP6. Neither has been detected above criteria since November 2007. Lead and vanadium have been detected once each exceeding criteria in monitoring well GWP3; neither has been detected above criteria since May 2005. The only other two constituents detected above criteria were methylene chloride in monitoring well DWD12 in (May 2003) and acetone in monitoring wells GWD8 (September 2001), GWD9 (May and December 2003), GWP3 (September 2001, and GWP6 (September 2001 and January 2002). Both of these constituents are common laboratory contaminants and acetone has also been documented to be contained in bentonite pellets.

Arsenic is the only other constituent observed above screening criteria in the lower outwash deposits at the Facility. The concentrations of arsenic in the monitoring wells installed in both the upper (GW) and

lower (DW) outwash deposits have been consistent over time. Elevated arsenic concentrations in groundwater in southeastern Michigan are well documented and it is believed that the concentrations detected in these deep monitoring wells are associated with regional background levels. In addition, for monitoring wells were arsenic has been detected above criteria the concentrations have stabilized.

Due to the lack of reported exceedances of VOCs, SVOCs, and PCBs in the deep saturated groundwater zone, it is proposed that the deep monitoring wells be removed from the groundwater monitoring program.

Tables 1A through 1C provide a detailed summary of the proposed changes to the groundwater monitoring program. Appendix A provides the complete set of the semi-annual groundwater sampling analytical tables.

Subject: FW: GM Pontiac North Campus - Semi-Annual Groundwater Monitoring Program Proposed Modifications
Attachments: PNC GMP Moficication Proposal 10-30-09.pdf

-----Original Message-----
From: Nemani.Nate@epamail.epa.gov [mailto:Nemani.Nate@epamail.epa.gov]
Sent: Monday, November 23, 2009 2:59 PM
To: Hare, Robert
Cc: Landale, Beth; jean.e.caufield@gm.com; McKenna, John; O'Neill, Gavin
Subject: Re: GM Pontiac North Campus - Semi-Annual Groundwater Monitoring Program Proposed Modifications

Bob:

The proposal modifications to the semi-annual Groundwater Monitoring Program (GMP) outlined in the October 30, 2009 e-mail w/ attachments for the subject facility have been reviewed.

The submittal requested approval for the following provisions.

a) Elimination of select monitoring wells and parameters from the GMP .

b) Change of frequency of monitoring from semi-annual to annual for certain wells.

c) Implement the GMP for two (2) more years and terminate it after that provided the data continue to show stable or decreasing trends.

Based on the review and the justifications offered for the changes, the above provisions a) and b) are hereby approved.

Regarding the provision c), to terminate the GW monitoring after 2 years, a separate request , will need to be submitted at the of the 2-year period with pertinent documentation.

If you have any questions, please contact me.

Nate

NATE NEMANI, P.E.
RCRA CORRECTIVE ACTION PROJECT MANAGER
LAND AND CHEMICALS DIVISION
REMEDIATION AND REUSE BRANCH,
U. S.EPA, REGION 5 ,
77 W JACKSON Blvd, CHICAGO,ILLINOIS,60604, Mail Code: LU-9J
(312) 886-3224 (PHONE)
(312) 692-2176 (FAX)
nemani.nate@epa.gov (e-mail address)

From: "O'Neill, Gavin" <goneill@craworld.com>

To: Nate Nemani/R5/USEPA/US@EPA

Cc: "Hare, Robert" <rhare@alixpartners.com>, <jean.e.caufield@gm.com>, "Landale, Beth"
<blandale@craworld.com>, "McKenna, John" <John.McKenna@arcadis-us.com>

Date: 10/30/2009 01:02 PM

Subject: GM Pontiac North Campus - Semi-Annual Groundwater Monitoring Program Proposed Modifications

Mr. Nemani

Please find attached a joint request from GM LLC and MLC to modify the Semi-Annual Groundwater Monitoring Program for the GM Pontiac North Campus. As presented in the attached letter, we are proposing a conference call next week on either November 5 or 6, 2009 to discuss the proposed modifications. Please let us know at your earliest convenience your availability for those dates.

Should you have any questions or require additional information, please contact our office.

_____--------_____
Gavin O'Neill
Conestoga-Rovers & Associates (CRA)

1880 Assumption St., Unit 200
Windsor, Ontario, N8Y 1C4

Phone: 519.996.9886
Fax: 519.996.3894
Cell: 519.965.9000
Email: goneill@CRAworld.com
www.CRAworld.com
Think before you print P
Perform every task the safe way, the right way, every time!

[attachment "PNC Proposed Modifications to GMP.pdf" deleted by Nate Nemani/R5/USEPA/US]

Appendix B

2018 GMP Request and USEPA Approval

MEMO

ARCADIS Design & Consultancy for natural and built assets

To:

Nate Nemani

USEPA Region 5

77 West Jackson Boulevard

Mail Code: LU-9J

Chicago, Illinois 60604-3507

Copies:

Dave Favero, RACER

Arcadis File

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

From:

Brad Saunders, P.E.

Date:

August 27, 2018

Arcadis Project No.:

B0064607.2018

Subject:

RACER Pontiac North Campus – Groundwater Monitoring Program Modification Request

---

On behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust, Arcadis of Michigan, LLC (Arcadis) is requesting approval from the United States Environmental Protection Agency (USEPA) to modify the annual groundwater monitoring program at the Pontiac North Campus Site (the Site) located in Pontiac, Michigan (**Figure 1**).

The purpose of this request is to revise the program to incorporate recommended analysis and/or gauging of certain monitoring wells based on the results of continued investigation activities and recommendations pertaining to proposed corrective measures being implemented at the facility.

Based on the results of groundwater investigation activities for 1,4-dioxane and volatile organic compounds (VOCs) at the southwestern Fiero boundary, the following modifications are proposed:

- Add monitoring well MW-02-17 to the annual groundwater sampling list in lieu of monitoring well MWF1R, add both monitoring wells MW-16-23 and MW-16-25, and add new monitoring well MW-05-18 (installed August 2018) to monitor trends in VOCs and 1,4-dioxane concentrations.
- In addition to recommendations above and to facilitate future monitoring for trends in VOCs and 1,4-dioxane concentrations, add monitoring wells MWF7-02, MWF16-06, MW-01-17, TW-MD-01 and TW-MD-07 to the list of monitoring wells gauged and sampled for VOCs and 1,4-dioxane analysis. Also add 1,4-dioxane to the list of analytical parameters for monitoring wells MWF12-01, MWW01-SEN03, MWW1-04, MW40-99, and TW-10-02, and add VOCs to the list of analytical parameters for MWOS-01.

Based on the results of ongoing LNAPL investigation and testing activities, the following modifications are proposed:

- Add annual groundwater and LNAPL gauging of monitoring wells SB-08-14, SB-25-14, SB-43-14, and maintain annual gauging of groundwater and LNAPL of monitoring wells MWW8-65 and TWW8-01.

Based on the approved Proposed Monitoring Well Network (Table 4 in the Montcalm Seep Interim Measures Work Plan), the following modifications are proposed to incorporate baseline (2018) and future annual monitoring requirements:

- Maintenance of gauging for monitoring wells TW-01-03, TW-10-01, and TW-10-02, and expansion of monitoring wells MWW01-SEN03, MWW01-SEN04, MWW5-01, TW-09-01, MWW10-SEN02 which are already on the annual gauging list to include sampling for analysis of specified parameters.
- Addition of injection wells INJ-01-17 and INJ-02-18 (installed August 2018) and monitoring wells MW-03-17, MW-04-17, TW-MD-01, TW-MD-02, TW-MD-03, TW-MD-04, TW-MD-05, TW-MD-06, TW-MD-07, and MWW1-15 to include annual gauging and sampling for specified parameters.

Based on a combination of past analytical results and the availability of data from other nearby monitoring wells and due to complications related to accessibility:

- Remove MWF16-17, MWW8-34, MWW8-45, MWW8-48, RWW8-119, RWW8-124, RWW8-125, RWW8-130, RWW8-131, RWW8-132, TWM2-04, TWMW-05, MWM16-15 and MWM16-45 from the list of monitoring wells which are gauged annually. Also remove MWF1R, MWM16-29, and MWM16-36 from the list of monitoring wells gauged and sampled for VOC analysis annually, and remove annual analysis of VOCs and inorganics from monitoring well MWF12-01.

In conclusion, USEPA approval of the is requested. Please contact us if you have any questions regarding this memo or its attachments.

Sincerely,

Arcadis of Michigan, LLC

Brad Saunders, P.E.
Principal Engineer/ Certified Project Manager

Table

Table 1 Annual GW Monitoring List (Rev 2018)

Figures

Figure 1 Site Location

Figure 2 Annual Groundwater Monitoring Wells

TABLES

Table 1
Annual Groundwater Monitoring List
RACER Trust Pontiac North Campus

Well ID	Annual Gauging	Annual Sampling	VOCs	1,4-dioxane	Inorganics	PCBs	Geochemical per Montcalm Seep IMWP	Notes
SITEWIDE								
MWF1R				--	--	--	--	--
OFFSITE								
MWOS-01	X	X	X	--	--	--	--	--
MWOS-02	X	--	--	--	--	--	--	--
MWOS-03	X	--	--	--	--	--	--	--
MWOS-04	X	--	--	--	--	--	--	--
MWOS-06	X	--	--	--	--	--	--	--
FIERO								
F-7								
MWF7-01				--	--	--	--	--
MWF7-02	X	X	X	X	--	--	--	--
F-8								
MWF8-01	X	X	X	--	--	--	--	--
F-12								
MWF12-01	X	X		X		--	--	--
MWF12-02	X	X	X	--	Mn	--	--	--
F-16								
MWF16-10	X	--	--	--	--	--	--	--
MWF16-11	X	--	--	--	--	--	--	--
MWF16-05	X	--	--	--	--	--	--	--
MWF16-06	X	X	X	X	--	--	--	--
MWF16-17		--	--	--	--	--	--	--
MWF16-16	X	--	--	--	--	--	--	--
MWF16-23	X	X	X	X	--	--	--	--
MWF16-25	X	X	X	X	--	--	--	--
MW-02-17	X	X	X	X	--	--	--	--
MW-05-18	X	X	X	X	--	--	--	Installed August 2018

Abbreviations
Mn - Manganese
Pb - Lead
PCBs - Polychlorinated biphenyls
Sb - Antimony
V - Vanadium
VOCs - Volatile organic compounds

Footnotes:
Geochemical sampling per the Montcalm Seep IMWP includes: calcium, iron, manganese, magnesium, alkalinity, hardness, dissolved and suspended solids.

No change in annual gauging and/or sampling.
Well and/or associated test parameters are proposed to be added to annual gauging and/or sampling.
Well has become subject to an annual gauging and sampling requirement relevant to the Montcalm Seep IMWP baseline and annual monitoring program.
Well and/or associated test parameters are proposed to be removed from annual gauging and/or sampling.

Well ID	Annual Gauging	Annual Sampling	VOCs	1,4-dioxane	Inorganics	PCBs	Geochemical per Montcalm Seep IMWP	Notes
PONTIAC SCHOOL BOARD PROPERTY RIGHT-OF-WAY								
MWPS-02	X	--	--	--	--	--	--	--
DEMOLITION AREA								
W-1								
MWW01-SEN03	X	X	X	X	X	X	X	Previously annual gauging only; subject to Montcalm seep monitoring
MWW01-SEN04	X	X	X	--	X	X	X	Previously annual gauging only; subject to Montcalm seep monitoring
MWW1-04	X	X	X	X	Sb, V	X	--	--
MWW1-06	X	--	--	--	--	--	--	--
MW-40-99	X	X	X	X	--	X	--	--
MW-01-17	X	X	X	X	--	--	--	
TW-01-01	X	--	--	--	--	--	--	--
TW-01-02	X	--	--	--	--	--	--	--
TW-01-03	X	--	--	--	--	--	--	Previously annual gauging; also subject per Montcalm Seep IMWP
SB-43-14	X	--	--	--	--	--	--	--
W-5								
MWW5-01	X	X	X	--	X	X	X	Previously annual gauging only; subject to Montcalm seep monitoring
W-8								
TW-03-01	X	--	--	--	--	--	--	--
MWW8-34		--	--	--	--	--	--	--
MWW8-45		--	--	--	--	--	--	--
MWW8-48		--	--	--	--	--	--	--
MWW8-65	X	--	--	--	--	--	--	--
RWW8-119		--	--	--	--	--	--	--
RWW8-124		--	--	--	--	--	--	--
RWW8-125		--	--	--	--	--	--	--
RWW8-129	X	--	--	--	--	--	--	--
RWW8-130		--	--	--	--	--	--	--
RWW8-131		--	--	--	--	--	--	--
RWW8-132		--	--	--	--	--	--	--
RWW8-133	X	--	--	--	--	--	--	--

Abbreviations
Mn - Manganese
Pb - Lead
PCBs - Polychlorinated biphenyls
Sb - Antimony
V - Vanadium
VOCs - Volatile organic compounds

Footnotes:
Geochemical sampling per the Montcalm Seep IMWP includes: calcium, iron, manganese, magnesium, alkalinity, hardness, dissolved and suspended solids.

No change in annual gauging and/or sampling.
Well and/or associated test parameters are proposed to be added to annual gauging and/or sampling.
Well has become subject to an annual gauging and sampling requirement relevant to the Montcalm Seep IMWP baseline and annual monitoring program.
Well and/or associated test parameters are proposed to be removed from annual gauging and/or sampling.

Well ID	Annual Gauging	Annual Sampling	VOCs	1,4-dioxane	Inorganics	PCBs	Geochemical per Montcalm Seep IMWP	Notes
W-8								
TW-11-01	X	--	--	--	--	--	--	--
TW-11-02	X	--	--	--	--	--	--	--
TW-09-01	X	X	X	--	X	X	X	Previously annual gauging only; subject to Montcalm seep monitoring
TW-10-01	X	--	--	--	--	--	--	Previously annual gauging; also subject per Montcalm Seep IMWP
TW-10-02	X	--	--	X	--	--	--	Previously annual gauging; also subject per Montcalm Seep IMWP
TWW8-01	X	--	--	--	--	--	--	--
W-10								
MWW10-03	X	X	X	--	Pb, Mn	X	--	--
MWW10-SEN01	X	--	--	--	--	--	--	--
MWW10-SEN02	X	X	X	--	X	X	X	Previously annual gauging only; subject to Montcalm seep monitoring
SB-25-14	X	--	--	--	--	--	--	--
SB-08-14	X	--	--	--	--	--	--	--
MFD								
M-2								
MWM2-22	X	--	--	--	--	--	--	--
MWM2-28	X	--	--	--	--	--	--	--
MWM2-37	X	--	--	--	--	--	--	--
TWM2-04		--	--	--	--	--	--	No longer present, accessible or necessary
TWM2-05		--	--	--	--	--	--	No longer present, accessible or necessary
M-4								
MWM4-05	X	--	--	--	--	--	--	--
MWM4-06R	X	--	--	--	--	--	--	--
M-5								
MWM5-02	X	--	--	--	--	--	--	--
MWM5-03	X	--	--	--	--	--	--	--

Abbreviations
Mn - Manganese
Pb - Lead
PCBs - Polychlorinated biphenyls
Sb - Antimony
V - Vanadium
VOCs - Volatile organic compounds

Footnotes:
Geochemical sampling per the Montcalm Seep IMWP includes: calcium, iron, manganese, magnesium, alkalinity, hardness, dissolved and suspended solids.

No change in annual gauging and/or sampling.
Well and/or associated test parameters are proposed to be added to annual gauging and/or sampling.
Well has become subject to an annual gauging and sampling requirement relevant to the Montcalm Seep IMWP baseline and annual monitoring program.
Well and/or associated test parameters are proposed to be removed from annual gauging and/or sampling.

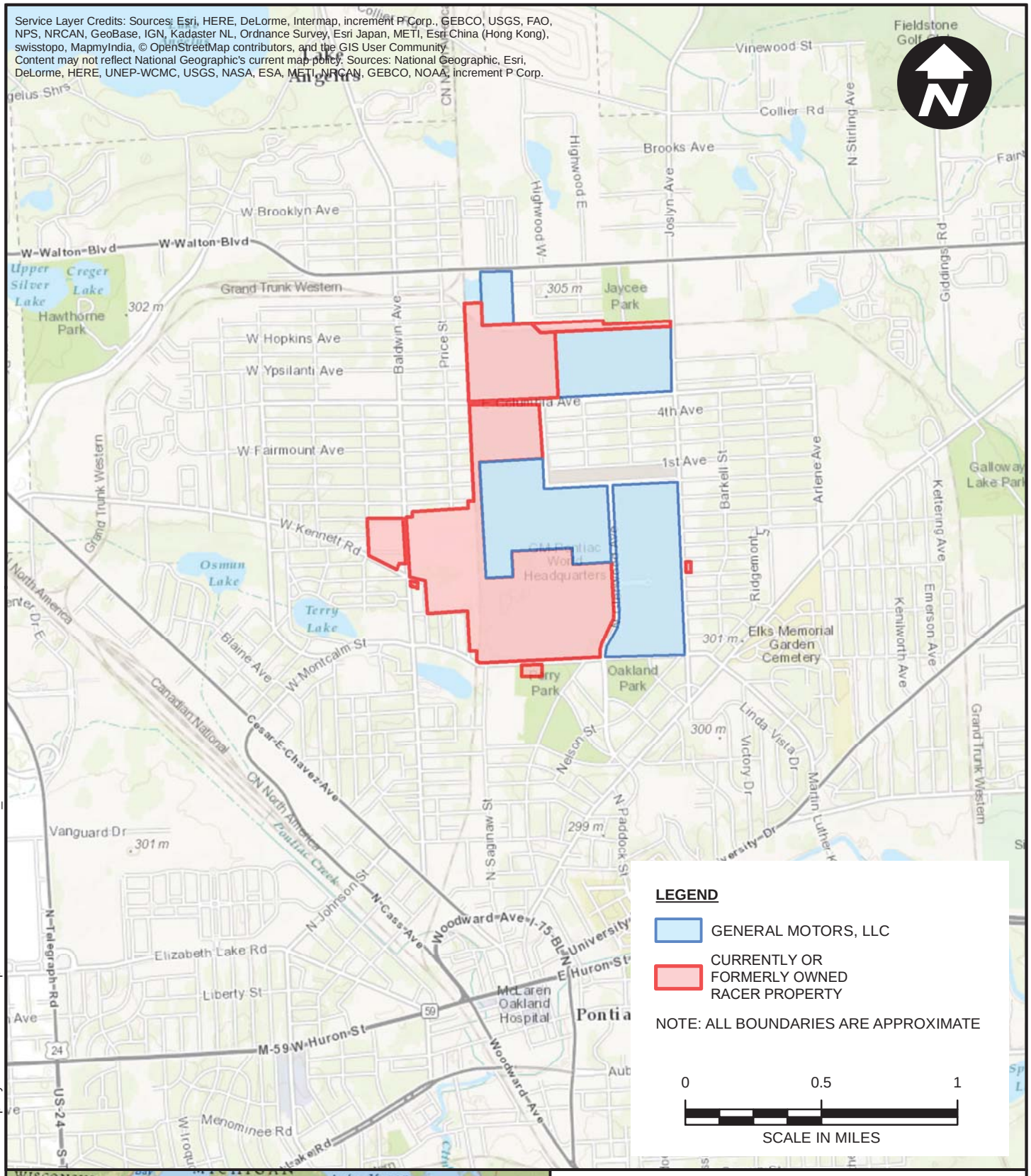
Well ID	Annual Gauging	Annual Sampling	VOCs	1,4-dioxane	Inorganics	PCBs	Geochemical per Montcalm Seep IMWP	Notes
M-16								
MWM16-02	X	X	X	--	--	--	--	--
MWM16-15		--	--	--	--	--	--	--
MWM16-29				--	--	--	--	--
MWM16-30	X	X	X	--	--	--	--	--
MWM16-31	X	X	X	--	--	--	--	--
MWM16-36				--	--	--	--	--
MWM16-37	X	X	X	--	--	--	--	--
MWM16-45		--	--	--	--	--	--	--
M-31/M-32								
MWM31-02	X	X	X	--	--	--	--	--
MWM32-01	X	X	X	--	--	--	--	--
Montcalm Seep Monitoring								
INJ-01-17	X	X	X	--	X	X	X	--
INJ-02-18	X	X	X	--	X	X	X	Installed August 2018
MW-03-17	X	X	X	--	X	X	X	--
MW-04-17	X	X	X	--	X	X	X	--
TW-MD-01	X	X	X	X	X	X	X	--
TW-MD-02	X	X	X	--	X	X	X	--
TW-MD-03	X	X	X	--	X	X	X	--
TW-MD-04	X	X	X	--	X	X	X	--
TW-MD-05	X	X	X	--	X	X	X	--
TW-MD-06	X	X	X	--	X	X	X	--
TW-MD-07	X	X	X	X	X	X	X	--
MWW1-15	X	X	X	--	X	X	X	--

Abbreviations
Mn - Manganese
Pb - Lead
PCBs - Polychlorinated biphenyls
Sb - Antimony
V - Vanadium
VOCs - Volatile organic compounds

Footnotes:
Geochemical sampling per the Montcalm Seep IMWP includes: calcium, iron, manganese, magnesium, alkalinity, hardness, dissolved and suspended solids.

No change in annual gauging and/or sampling.
Well and/or associated test parameters are proposed to be added to annual gauging and/or sampling.
Well has become subject to an annual gauging and sampling requirement relevant to the Montcalm Seep IMWP baseline and annual monitoring program.
Well and/or associated test parameters are proposed to be removed from annual gauging and/or sampling.

FIGURES



RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SITE LOCATION

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

PROJECT NUMBER: B0064411.0001.00145
CITY:NOVI DIV/GROUP:ENV DB: PIC: PM: TM: TR:
Path: D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampus\Documents\SiteLocation_AOC.mxd

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

MWM4-05
MWM4-06R
MWM16-15
MWM16-45
MWM16-30
MWM16-29
MWM5-02
MWM5-03
MWM16-02
MWM16-31
MWM16-37
MWM16-36
MWM31-02
MWM32-01
MWF8-01
MWF16-10
MWF16-17
MWF16-11
MWF16-05
MWF16-06
MWF16-16
MWF16-25
MWF16-23
MWF7-01
MWF7-02
MW-05-18
MWF12-01
MWF1R
MW-02-17
MWF12-02
MWW10-03
SB-08-14
MWM2-22
MWM2-28
TWM2-04
TWM2-05
INJ-01-17
MW-04-17
MW-03-17
INJ-02-18
RWW8-124
RWW8-125
MWW8-45
RWW8-129
RWW8-130
RWW8-131
RWW8-132
MWW8-34
RWW8-133
RWW8-119
MWW8-48
TW-10-01
TW-10-02
TW-09-01
TW-03-01
TW-11-01
TW-11-02
TWW8-01
MWW8-65
MWW5-01
SB-25-14
MWW10-SEN01
TW-01-01
TW-01-03
TW-01-02
SB-43-14
MWW10-SEN02
TW-MD-01
TW-MD-02
TW-MD-03
MWW01-SEN03
MWW01-SEN04
MWW1-15
MW-40-99
TW-MD-07
MWW1-04
MW-01-17
MWOS-01
MWOS-02
MWOS-03
MWW1-06
MWOS-04
MWOS-06
TW-MD-06
TW-MD-05
TW-MD-04
MWPS-02

LEGEND

- ▲ INJECTION WELL
- ◭ MONITORING WELL
- ● SOIL BORING/MONITORING WELL
- WELL AND/OR ASSOCIATED TEST PARAMETERS ARE PROPOSED TO BE ADDED TO ANNUAL GAUGING AND/OR SAMPLING.
- NO CHANGE IN ANNUAL GAUGING AND/OR SAMPLING.
- WELL HAS BECOME SUBJECT TO AN ANNUAL GAUGING AND SAMPLING REQUIREMENT RELEVANT TO THE MONTCALM SEEP IMWP BASELINE AND ANNUAL MONITORING PROGRAM.
- WELL AND/OR ASSOCIATED TEST PARAMETERS ARE PROPOSED TO BE REMOVED FROM ANNUAL GAUGING AND/OR SAMPLING.

0 500 1,000
SCALE IN FEET

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

ANNUAL GROUNDWATER MONITORING WELLS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: NOVI, MI DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampus\Documents\Annual GW MonitoringWells 2018.mxd PLOTTED: 8/23/2018 11:35:58 AM BY: TYarbrough

Saunders, Brad

From: Nemani, Nate <nemani.nate@epa.gov>
Sent: Monday, September 17, 2018 2:48 PM
To: Saunders, Brad
Cc: Dave Favero
Subject: RE: RACER PNC - Annual Groundwater Program Modification Memorandum Report / Approval Request

Brad:

EPA hereby grants approval to implement the Annual Groundwater Monitoring with the modifications as outlined in the August 27, 2018 memo/report.

If there are any questions, feel free to contact me.

Nate

NATE NEMANI, P.E.
RCRA CORRECTIVE ACTION PROJECT MANAGER
LAND AND CHEMICALS DIVISION
REMEDIATION AND REUSE BRANCH,
U. S.EPA, REGION 5 ,
77 W JACKSON Blvd, CHICAGO,ILLINOIS,60604, Mail Code: LU-9J
(312) 886-3224 (PHONE)
(312) 692-2176 (FAX)
nemani.nate@epa.gov (e-mail address)

From: Saunders, Brad [mailto:Brad.Saunders@arcadis.com]
Sent: Monday, August 27, 2018 6:28 PM
To: Nemani, Nate <nemani.nate@epa.gov>
Cc: Dave Favero <dfavero@racertrust.org>
Subject: RACER PNC - Annual Groundwater Program Modification Memorandum Report / Approval Request

Nate,

As follow-up to the proposed modifications to the annual groundwater monitoring program which were discussed during our monthly update call today, attached is an electronic version of the memo report and associated table and figures prepared to summarize and highlight/depict changes to the list of monitoring wells proposed to be gauged and sampled during the annual event. Arcadis will also forward two hard copies of the report to your attention.

Upon review, please provide back any questions, or otherwise your approval for implementing changes which are planned for the event scheduled from October 1-5, 2018.

Thanks,

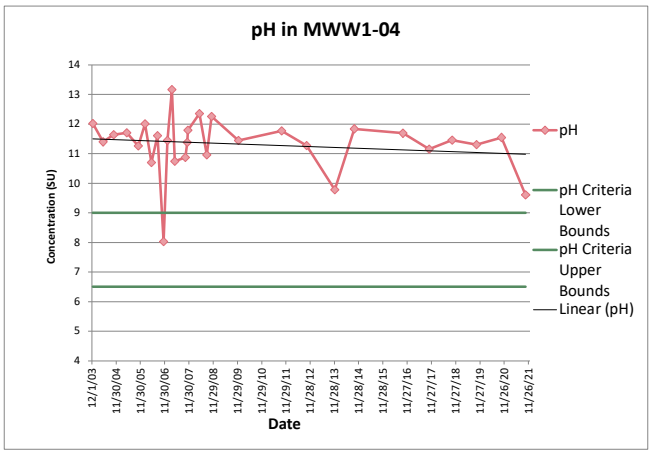
Brad

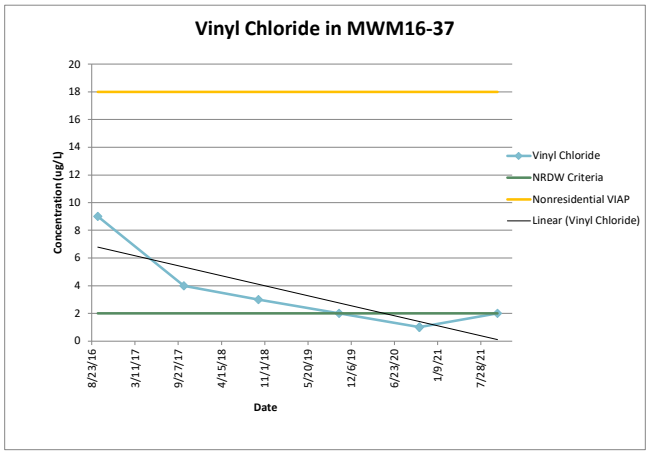
Brad Saunders P.E. | Principal Engineer | brad.saunders@arcadis.com
Arcadis | Arcadis U.S., Inc. **|** Arcadis of Michigan, LLC
M. +1 517 974 4441

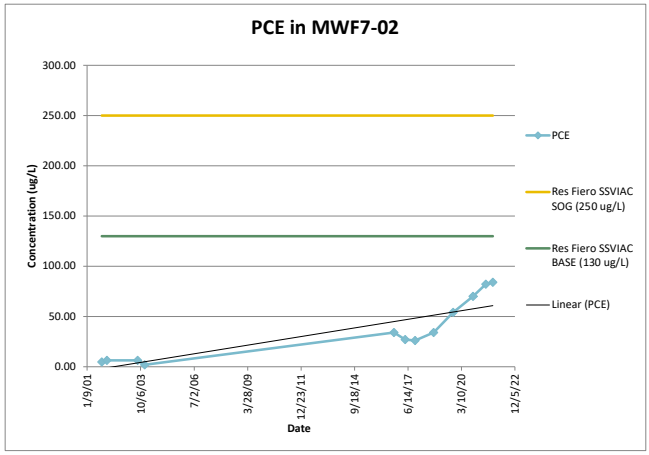
Professional Engineer / PE-MI, 6201050540

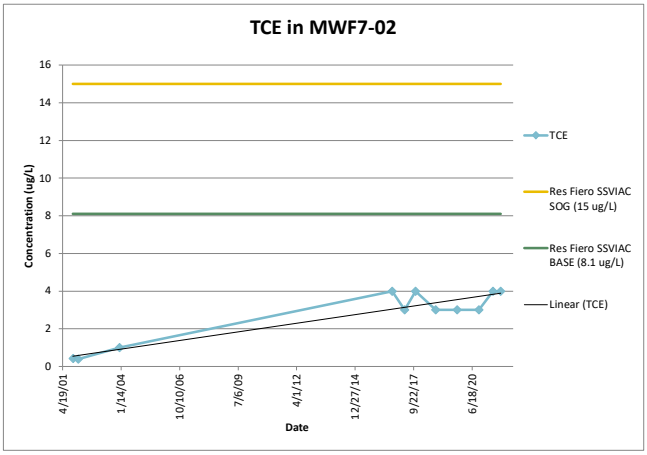
Appendix C

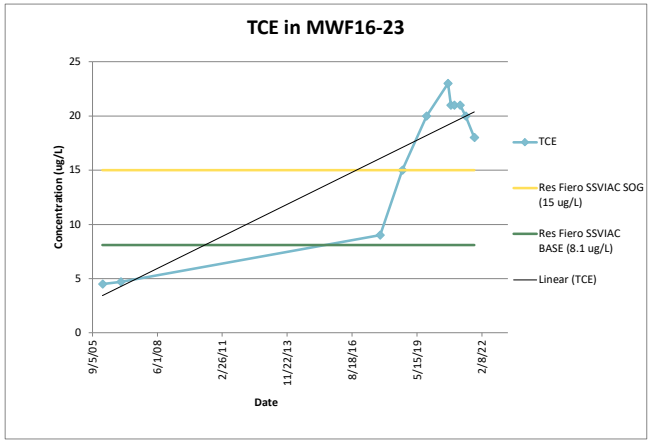
Chemical Concentration Graphs

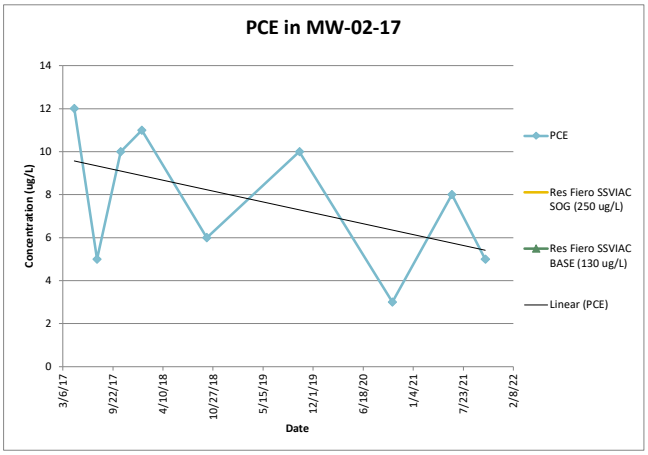

pH in MWW1-04
Concentration (SU)
Date
pH
pH Criteria Lower Bounds
pH Criteria Upper Bounds
Linear (pH)

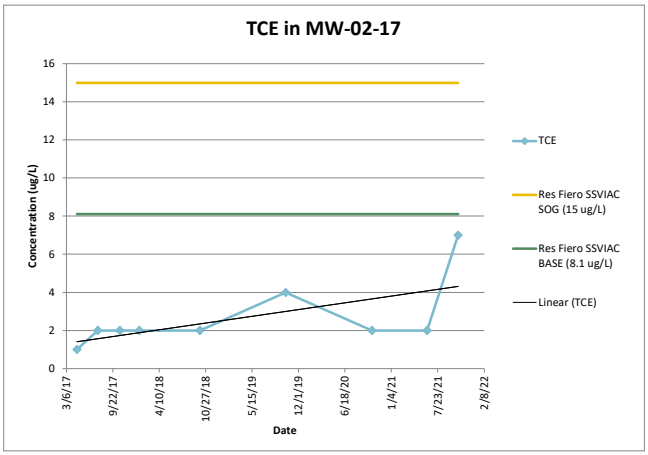

Vinyl Chloride in MWM16-37
Concentration (ug/L)
Date
Vinyl Chloride
NRDW Criteria
Nonresidential VIAP
Linear (Vinyl Chloride)

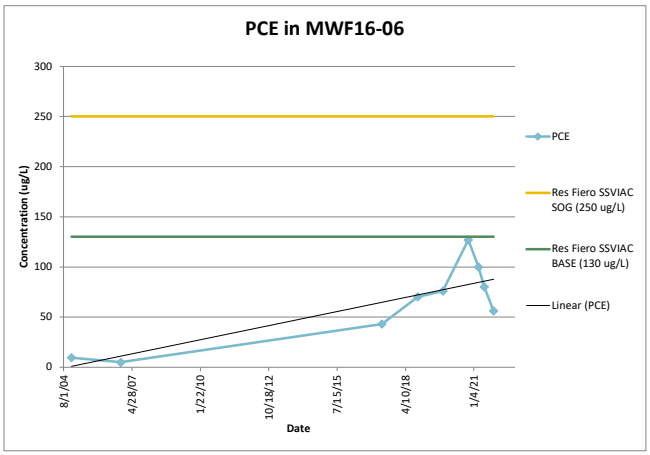

PCE in MWF7-02
Concentration (ug/L)
Date
PCE
Res Fiero SSVIAC SOG (250 ug/L)
Res Fiero SSVIAC BASE (130 ug/L)
Linear (PCE)

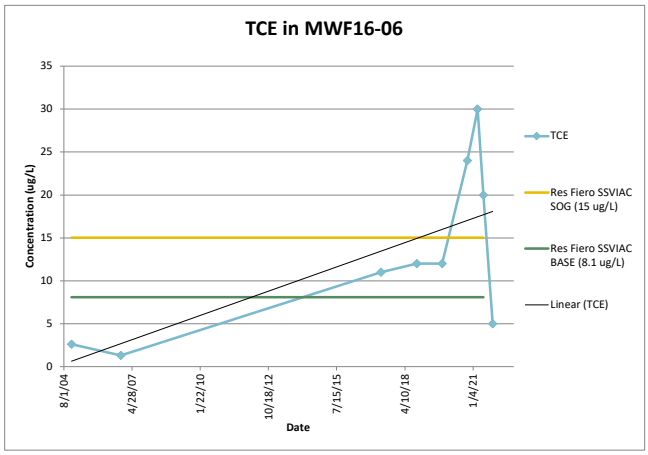

TCE in MWF7-02
Concentration (ug/L)
Date
TCE
Res Fiero SSVIAC SOG (15 ug/L)
Res Fiero SSVIAC BASE (8.1 ug/L)
Linear (TCE)


TCE in MWF16-23
Concentration (ug/L)
Date
TCE
Res Fiero SSVIAC SOG (15 ug/L)
Res Fiero SSVIAC BASE (8.1 ug/L)
Linear (TCE)


PCE in MW-02-17
Concentration (ug/L)
Date
PCE
Res Fiero SSVIAC SOG (250 ug/L)
Res Fiero SSVIAC BASE (130 ug/L)
Linear (PCE)


TCE in MW-02-17
Concentration (ug/L)
Date
TCE
Res Fiero SSVIAC SOG (15 ug/L)
Res Fiero SSVIAC BASE (8.1 ug/L)
Linear (TCE)


PCE in MWF16-06
Concentration (ug/L)
Date
PCE
Res Fiero SSVIAC SOG (250 ug/L)
Res Fiero SSVIAC BASE (130 ug/L)
Linear (PCE)


TCE in MWF16-06
Concentration (ug/L)
Date
TCE
Res Fiero SSVIAC SOG (15 ug/L)
Res Fiero SSVIAC BASE (8.1 ug/L)
Linear (TCE)

Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500
Novi
Michigan 48377
Phone: 248 994 2240
www.arcadis.com