



2024 Annual Groundwater Monitoring Report

Pontiac North Campus

Draft Submittal: June 25, 2025

Final Submittal: October 29, 2025

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Acronyms and Abbreviations

6:2 FTS	1H,1H, 2H, 2H-Perfluorooctane sulfonic acid
AOI	Area of Interest
COC	Chain of Custody
DO	dissolved oxygen
EDD	Electronic Data Deliverable
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EI	Environmental Indicator
GLWA	Great Lakes Water Authority
GMC	General Motors Corporation
GM LLC	General Motors LLC
GMP	Groundwater Monitoring Program
GSI	Groundwater Surface Water Interface
IP	interface probe
LNAPL	light non-aqueous phase liquid
mg/L	milligrams per liter
MK	Mann-Kendall
MLC	Motors Liquidation Company
MS/MSD	Matrix spike/matrix spike duplicate
NEtFOSAA	N-ethyl perfluorooctanesulfonamide
ng/L	nanograms per liter
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
ORP	oxidation reduction potential
PCB	polychlorinated biphenyl
PFAS	per- and polyfluoroalkyl substances
PFBA	Perfluorobutanoic Acid
PFBS	Perfluorobutanesulfonic acid

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PFHpA	perfluoroheptanoic acid
PFHxA	Perfluorohexanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PFPeA	perfluorooctane sulfonate
PFPeS	Perfluoropentansulfonic acid
PNC	Pontiac North Campus
RACER	Revitalizing Auto Communities Environmental Response
RCRA	Resource Conservation and Recovery Act
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
RHBDW	Residential health-based drinking water
TDS	total dissolved solids
TGMP	Temporary Groundwater Monitoring Plan
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
USPS	United States Postal Service
VI	vapor intrusion
VIAP	volatilization to indoor air pathway
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 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 (RACER) Trust 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 Trust and RACER Trust became responsible for completing certain environmental action at those properties, including a portion of PNC (hereafter referred to as the Site) (**Figure 1**).

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 (**Figure 1**). Existing and planned deed restrictions do restrict and will restrict use of on-site groundwater for any purpose. PNC property parcels sold by RACER Trust include restrictions on groundwater use and prohibit the installation of groundwater wells as outlined in Declaration for Restrictive Covenant filed at the Oakland County Register of Deeds for those respective parcels.

The Site Groundwater Monitoring Program (GMP) was presented in 2002 as part of the Environmental Indicators (EI) CA 750 determination (ENVIRON 2002) to the United States Environmental Protection Agency (USEPA). Since 2002, groundwater samples have been collected from select monitoring wells on either a semi-annual or annual basis to monitor constituent concentrations in groundwater and evaluate groundwater stability. Since 2002, several additional monitoring wells were added to the GMP at the request of USEPA. On October 30, 2009, MLC and GM LLC jointly submitted a request to the USEPA to modify the Site GMP, which USEPA approved on November 23, 2009, via email (**Appendix A**). On August 27, 2018, RACER Trust submitted a request to USEPA to modify the Site GMP, which USEPA approved on September 17, 2018, via email (**Appendix B**). Both the 2009 and 2018 modification requests included the removal of some monitoring wells/analytes from the GMP.

Based on a review of site analytical trends, along with an evaluation of ongoing exceedances, RACER Trust submitted a new request to modify the Site GMP on August 29, 2024. The modification included removal of some monitoring wells/analytes from the GMP and the addition of per-and polyfluoroalkyl substances (PFAS) monitoring. A second draft of the Site GMP was submitted on October 3rd, 2024, that addressed initial comments provided by USEPA. Additional comments, including the addition of select monitoring wells and/or analysis, were received from the USEPA on October 23rd, 2024. A response to comment was provided by RACER Trust to USEPA on October 29th, 2024, confirming the addition of monitoring wells and analysis. USEPA approved of the GMP, with conditions, on October 30th, 2024, via email (**Appendix C**). This annual groundwater monitoring is based on the USEPA conditional approval of the 2024 GMP, which includes the requested additional wells/analytes. Based on the 2024 results and correspondence with USEPA, a final revised GMP will be submitted to USEPA in 2025 with the intention to establish the final set of wells used for future monitoring at the Site.

A comprehensive list of monitoring wells gauged and/or sampled during the 2024 annual groundwater monitoring event are provided in **Table 1** and includes relevant notes as to why specific wells were sampled, including additional sampling requests from USEPA. The following sections of this report summarize the procedures used to complete the 2024 annual groundwater sampling and the analytical results for the groundwater samples collected during this event.

2 Groundwater Sampling Procedures

2.1 Water Level Measurements

Groundwater and light non-aqueous phase liquid (LNAPL) level measurements were recorded from select monitoring wells on November 4, 2024. For wells without LNAPL, groundwater levels were measured to the nearest 0.01 foot with a water level meter, and wells with LNAPL present were measured 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, groundwater elevations and LNAPL thickness is presented in **Table 2**.

2.2 Groundwater Sample Collection

Groundwater samples for laboratory analysis were collected using low-flow sampling procedures on November 5 through November 12, 2024. The procedures are included in 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 sampling logs can be found in **Appendix D**.

PFAS groundwater samples were collected and submitted to Pace Analytical Services, LLC (Pace) in Minneapolis, Minnesota for analysis of the 28 PFAS compounds using modified USEPA Method 537M with isotope dilution (DoD QSM 5.1). All other groundwater samples were collected and submitted to Merit Laboratories, Inc. (Merit) in Lansing, Michigan for analysis of volatile organic compounds (VOCs) using USEPA Method SW8260B, 1,4-dioxane using USEPA Method SW8260-SIMs, polychlorinated biphenyls (PCBs) using USEPA Method E608.3 and/or select metals (iron and manganese) using USEPA Method 6020. Select groundwater samples were also analyzed for total dissolved solids (TDS) utilizing USEPA method SM2540C. The pH was measured using a properly calibrated YSI Professional Plus multiparameter instrument.

Based on 2024 DRAFT GMP comments from the USEPA received on October 23rd, 2024, via email, the following wells and analytes were added to the proposed plan and are included in **Table 1**:

- PFAS monitoring was requested for MWOS-05, MWM30-01 and MW-03-17.
- Inorganics sampling was requested for MWOS-01, MWOS-02, MWOS-05, MWF12-02R, and MWW01-SEN03. TDS was also requested for MWW01-SEN03. Sampling for TDS was completed at all requested inorganics sampling locations since it was included in the analyte list for inorganics.
- 1,4-Dioxane monitoring was requested for wells TW-10-02, MWF12-01R, and MWF7-02. During the event, TW-10-02 was found to be damaged and was unable to be sampled. TW-10-01, a nearby monitoring well with a similar screen depth, was sampled in place of TW-10-02.
- VOCs monitoring was requested for monitoring wells MWM2-22, MWM2-28, MWM16-30, MWM16-02, and MWM16-37. Well MWM16-30 (located in the Former Plant 25 parcel) could not be located and is believed to be covered by large debris piles and not sampled during the 2024 event.

- PCBs monitoring was requested for MWOS-05 and TW-MD-06. LNAPL was present in TW-MD-06 and a groundwater sample was not collected.

2.3 Analytical Data Quality Assurance / Quality Control

For lab analysis quality control, one duplicate sample was collected for every ten (10) groundwater samples, and one (1) matrix spike/matrix spike duplicate (MS/MSD) was collected for every twenty (20) groundwater samples. One equipment blank was collected and submitted for PFAS analysis for each day PFAS was sampled. Furthermore, one (1) trip blank was collected for each sample set which included analysis for VOCs as part of lab report numbers S68389, S68390, and S68472. Within a day after delivery of each set of samples to Merit and Pace, 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 2024 annual groundwater sampling event.

Standard Level II laboratory analytical reports were delivered for each COC in laboratory data files received and electronic data deliverable (EDD) packages, followed by laboratory quality control reports. EDD files were uploaded to the Site database 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 2024 annual groundwater monitoring data, there were no trip blank detections, and duplicate sample results were representative of parent samples. The analytical data and validation report are included as **Appendix E**.

3 Groundwater Sampling Results

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), such as the higher elevation zone on the southeast side of the Former Fiero Assembly property. Groundwater elevation data will continue to be evaluated as part of the annual groundwater monitoring program to monitor potential changes in groundwater flow direction.

3.1 LNAPL Detection

During the 2024 gauging event, two on-site monitoring wells were observed to contain LNAPL and both locations have previously contained LNAPL. In Area of Interest (AOI) M-32, monitoring well MWM32-04 was gauged using an interface probe (IP) and contained approximately 2 feet of LNAPL. In AOI W-1, near the Montcalm Street seep area, monitoring well TW-MD-06 was gauged with an IP and contained approximately 0.2 feet of LNAPL. Follow-up activities were completed in 2023 and 2024 and can be found in the *LNAPL Assessment – MWM32-04 and TW-MD-06 Update* memo submitted as final to the USEPA on January 3rd, 2025 (Arcadis 2025a).

3.2 Groundwater 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, dated October 12, 2023 (EGLE 2023). The select criteria were used as a frame of reference as all the criteria are not necessarily applicable to everywhere on-site. The select criteria used for comparison with groundwater include:

- Residential Drinking Water Criteria (RDWC)
- Nonresidential Drinking Water Criteria (NRDWC)
- Groundwater Surface Water-Interface Criteria (GSI)
- Residential Health-Based Drinking Water Criteria (RHBDW)
- For monitoring wells within 100 feet of the property boundary and offsite, residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels for groundwater not in contact as based on updated Vapor Intrusion (VI) Guidance (EGLE 2021). Nonresidential VIAP was applied to interior monitoring wells. This criterion was utilized for groundwater data across the Site, with the exception of the Former Fiero Property.

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 2020). These criteria include:

- Residential Site-Specific Volatilization to Indoor Air Criteria for Basement (RFSSBASE) and slab-on-grade (RFSSSOG) scenarios are applied to Fiero monitoring wells within 100 feet of the property boundary and off-site. Nonresidential Site-Specific Volatilization to Indoor Air Criteria for Basement (NRFSSBASE) and slab-on-grade (NRFSSSOG) are applied to interior monitoring wells on former Fiero properties.

A detailed summary of Fiero analytical results was submitted to USEPA on April 10, 2025, in the *2024 Fiero Temporary Groundwater Monitoring Plan (TGMP) Summary Report* (Arcadis 2025b).

The Site, and the vicinity, obtain potable water from the Great Lakes Water Authority (GLWA) and do not rely on local groundwater as a drinking water supply and installation of water supply wells are not likely. Therefore, groundwater in the vicinity of the Site with constituent concentrations higher than RDWC and NRDWC do not pose an unacceptable risk. In addition, a groundwater restriction ordinance prohibiting the use of groundwater wells to the west and south of the Site (downgradient) was adopted by the City of Pontiac on August 16, 2013. Additionally, restrictions on the installation of water supply wells are in place across the Site except for the Former Fiero Parking Lot and Powerhouse properties owned by RACER Trust. The off-site groundwater ordinance area is shown on **Figure 1**. Regardless, due to the potential for off-site migration and as a frame of reference, groundwater at the Site is screened using RDWC and NRDWC, as well as VI and GSI criteria.

For VI, deed restrictions have been or will be recorded for each PNC parcel that will prohibit building or structures for human occupancy without first assessing the volatilization to indoor air pathway.

Note that NRDWC for pH, iron, and manganese are aesthetic drinking water values. A summary of detections of the September 2024 annual sampling groundwater analytical data at the Site (not including former Fiero) is included in **Table 3**. A summary of groundwater analytical data detections for the former Fiero Property is included in **Table 4** and includes the site-specific VI criteria comparison. A summary of all groundwater analytical data for non-Fiero and Fiero properties can be found in **Appendix F** and **G**, respectively. Historical groundwater analytical results can be found in **Appendix H**. Results of the 2024 groundwater monitoring events are summarized below.

PFAS (Figure 3)

PFAS was detected in 12 out of 15 sampled monitoring wells, and the seep vault, consisting of one or more of the following compounds: 1H,1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS) N-ethyl perfluorooctane sulfonamide (NEtFOSAA), Perfluorobutanesulfonic acid (PFBS), Perfluorobutanoic Acid (PFBA), perfluoroheptanoic acid (PFHpA), Perfluorohexanesulfonic acid (PFHxS), Perfluorohexanoic acid (PFHxA), perfluorooctane sulfonate (PFOS), Perfluorooctanoic acid (PFOA), Perfluoropentanesulfonic acid (PFPeS), and perfluorooctane sulfonate (PFPeA). PFOA concentrations exceeded the RDWC and NRDWC (8 nanograms per liter [ng/L]) at 7 monitoring wells. PFOS concentrations exceeded the RDWC and NRDWC (16 ng/L) at 4 monitoring wells and the seep vault, and GSI criteria (12 ng/L) at 5 monitoring wells and the seep vault in 2024. Of the 10 locations with RDWC, NRDWC, and GSI exceedances, 7 wells and the seep vault were located near the property boundary or offsite, as follows:

- *MWM30-01*: Located on the southern boundary of the Former Plant 15 property, this monitoring well contained concentrations of PFOA at 39.7 ng/L in 2024 and exceeded RDWC and NRDWC. A GMC industrial facility is directly downgradient of this location.
- *MWF16-26*: Located on the western boundary of the Former Fiero Assembly Plant 17 property, this monitoring well contained concentrations of PFOA at 25.1 ng/L in 2024 and exceeded RDWC and NRDWC. At this location, restrictions prohibit installation and use of groundwater wells.
- *MWF16-25*: Located at the southwest corner of the Former Fiero Assembly Plant 17 property, this monitoring well contained concentrations of PFOA at 11.3 ng/L in 2024 and exceeded RDWC and NRDWC. Directly downgradient of this location, restrictions prohibit installation and use of groundwater wells.
- *MWOS-09R*: Located offsite and west of the Former Fiero Powerhouse property, this monitoring well contained concentrations of PFOA at 50 ng/L in 2024 and exceeded RDWC and NRDWC. At this location, restrictions prohibit installation and use of groundwater wells.
- *MWW1-04*: Located on the southern boundary of the United States Postal Service (USPS) property, this monitoring well contained concentrations of PFOS at 98.6 ng/L in 2024 and exceeded RDWC, NRDWC and GSI criteria. Downgradient and offsite monitoring well, MWW1-06 did not have detections of any PFAS compounds.
- *MW-01-17*: Located on the southern boundary of the USPS property, this monitoring well contained concentrations of PFOS at 13.1 ng/L in 2024 that exceeded GSI criteria, and concentrations of PFOA at 14 ng/L that exceeded RDWC and NRDWC. Downgradient and offsite monitoring wells, MWW1-06 and MWOS-04 did not have detections of any PFAS compounds.
- *MWW1-02*: Located on the southern boundary of the USPS property, this well contained concentrations of PFOS at 53.2 ng/L in 2024 that exceeded RDWC, NRDWC, and GSI criteria. Downgradient and offsite monitoring well, MWOS-05 did not have detections of any PFAS compounds.
- *SEEPVAULT*: Located on the southern boundary of the USPS property, this sump, which is part of the Montcalm Street seep system, contained concentrations of PFOS at 105 ng/L in 2024 that exceeded RDWC, NRDWC, and GSI criteria. Downgradient and offsite monitoring wells, MWOS-04 and MWOS-05 did not have detections of any PFAS compounds, and groundwater from the sump is recirculated on-site at an upgradient location.

VOCs (Figure 4)

VOCs were detected in one (1) of the nine (9) monitoring wells sampled for VOCs in 2024. Detections of VOCs at MWM2-22 included 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-DCE), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC). Detections of VC and TCE at MWM2-22 exceeded the RDWC and NRDWC. None of the monitoring wells sampled for VOCs exceeded applicable GSI, VIAP, or Site-Specific Volatilization to Indoor Air Criteria.

It is noted that VOCs have been and will continue to be monitored at and reported for the Former Fiero properties according to the 2025 Fiero Temporary Monitoring Plan (Fiero TGMP) Summary submitted as part of the 2024 *Fiero Temporary Groundwater Monitoring Plan Summary* (Arcadis, 2025b).

1,4-Dioxane (Figure 5)

1,4-Dioxane was detected in all six (6) monitoring wells sampled in 2024. 1,4-Dioxane at the Site exceeded RDWC (7.2 micrograms per liter [µg/L]) at 4 monitoring wells but did not exceed NRDWC, GSI, VIAP, or Site-Specific Volatilization to Indoor Air Criteria. 1,4-Dioxane concentrations ranged from 3 to 176 micrograms per liter (µg/L). Of the 4 locations with RDWC exceedances, 3 wells were located near the property boundary or offsite, as follows:

- **MWF12-01R:** Located on the southern boundary of the Fiero Powerhouse property, this monitoring well contained concentrations of 1,4-Dioxane at 15 µg/L in 2024. Directly downgradient of this location, restrictions prohibit installation and use of groundwater wells.
- **MWOS-01:** Located offsite south of the Fiero Powerhouse property, this monitoring well contained concentrations of 1,4-Dioxane at 26 µg/L in 2024. At this location, restrictions prohibit installation and use of groundwater wells.
- **MWOS-04:** Located offsite south of the USPS property, this monitoring well contained concentrations of 1,4-Dioxane at 34 µg/L in 2024. At this location, restrictions prohibit installation and use of groundwater wells.

Metals (Figure 6)

Iron and manganese were detected in 11 out of 12 monitoring wells, and the seep vault. Iron concentrations exceeded the RHBDW criteria (2 milligrams per liter [mg/L]) at 8 monitoring wells and the seep vault and exceeded RDWC and NRDWC (0.3 mg/L) at 10 monitoring wells and the seep vault. Iron concentrations ranged from 0.29 to 29 mg/L. Manganese concentrations exceeded GSI criteria (1.3 mg/L) and RHBDW criteria (0.86 mg/L) at one monitoring well and exceeded RDWC and NRDWC (0.05 mg/L) at 11 monitoring wells and the seep vault. Manganese concentrations ranged from 0.19 to 1.58 mg/L.

Iron and manganese are aesthetic concerns and appear to be elevated across most of the Site, either as naturally occurring (reducing conditions mobilizing metals within the water bearing unit), because of historical Site use, or a combination of the two. Historical operations at portions of the Site included a foundry and placement of foundry material (slag, foundry sand, etc.).

Total Dissolved Solids (TDS) (Figure 7)

TDS was detected and exceeded GSI criteria (500 mg/L) in all 12 monitoring wells and seep vault sampled in 2024. TDS concentrations ranged from 500 to 1,740 mg/L in property boundary and offsite monitoring wells. TDS was added to the Montcalm seep area groundwater monitoring program in 2018 to be used as an indicator of potential water quality changes due to the dewatering and re-injection associated with the Montcalm Street seep control system.

There is no obvious explanation for the elevated TDS at the Site. Typically, TDS is driven by dissolution of an ionic material (salt, brine, or other material), but there is no evidence of materials like that at PNC other than road salt used on Montcalm Street in the winter months. High or low pH can also increase TDS in groundwater; however, only one well in the area (MWW1-04) displays elevated pH and the pH measured at the Montcalm Street sump was within normal range.

PCBs

PCBs were sampled at 1 monitoring well (MWOS-05) and were not detected.

3.2.1 Groundwater Analytical Trends

The following is a summary of groundwater sample trend results through November 2024. Mann-Kendall (MK) slope trend tests were completed on all monitoring wells and parameters included as part of the 2024 GMP provided they meet the following criteria:

- At least seven sampling events have been completed
- At least 50 percent of the sampling results were greater than detection limits
- At least one applicable criteria exceedance has been detected

Guidance for conducting the Mann-Kendall test have been provided in Section 17.3.2 of the USEPA guidance document (USEPA 2009). The Mann-Kendall trend test is a non-parametric test to evaluate if a statistically significant unidirectional (consistently increasing or decreasing) trend was observed during the monitoring period. Correlations were accepted as significant for p-values less than or equal to the alpha value, 0.05 (with a confidence level of 95 percent).

For monitoring wells with an applicable exceedance that did not meet the Mann-Kendall criteria, a concentration vs. time trend graph was created when more than one sample result was available. Mann-Kendall results and trend graphs are presented in **Appendix I** and the overall Mann-Kendall trend results are shown in **Figure 8**. Trend graphs specific to the USEPA requested monitoring wells are provided in **Appendix J**. Results of the trend analyses are summarized below.

Northern Metal Fabrication Division

- Mann-Kendall trend results for monitoring well MWM16-37 in the northern portion of the Site displays no significant trend for VOCs.
- Concentration trends for PFOA at monitoring well MWM30-01 show no apparent trend.

Fiero Properties

- Mann-Kendall trend results for monitoring well MWF7-02 located at the Former Fiero properties show no statistically significant trend for 1,4-dioxane.
- Concentration trends for PFAS at monitoring wells MWF16-25 and MWF16-26 appear to be decreasing. In monitoring well MWF12-02R, the trend for manganese appears to be increasing, but remains below GSI criteria.

Southern Metal Fabrication Division

- Mann-Kendall results for monitoring wells located in the southwest portion of the Site display statistically significant increasing TDS trends. Manganese results show no significant trend or decreasing trends except for MWW01-SEN03, which shows a statistically significant increasing trend. Iron results display no significant trend or decreasing trends.
- Concentration trends for PFOS results display no apparent trend except for MW-03-17 and MWW10-03, which show apparent increasing trends. PFOA results show no apparent trend or decreasing trends. VOC results at interior monitoring well MWM2-22 show an apparent decreasing trend for TCE and an increasing trend for VC.

Offsite

- Mann-Kendall trend results for offsite monitoring wells MWOS-01, MWOS-02, and MWW1-06 display no statistically significant trend for manganese.
- Concentration trends for manganese at well MWOS-04 show an apparent decreasing trend and an apparent increasing trend at MWOS-05. Concentration trends for well MWOS-09R show an apparent increasing PFOA trend.

4 Recommendations

As described in Section 3.2, based on updated VI guidance, groundwater data from across the Site was compared to Residential VIAP and Nonresidential VIAP screening levels for groundwater not in contact, and site-specific VI criteria were also used for comparison to results on the Former Fiero Property. As requested by the USEPA, RHBDW values were used for comparison for metals, including iron and manganese, as these health-based values are more appropriate than the aesthetic values.

As previously indicated, the Site and the immediate vicinity obtain potable water from the GLWA and do not rely on local groundwater as a drinking water supply. Therefore, groundwater in the vicinity of the Site with constituent concentrations higher than RDWC and NRDWC does not pose an unacceptable risk. 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 as shown on **Figure 1**.

Groundwater exceedances at the Site are consistent with historical results and changes to the implemented or proposed interim/corrective measures at the Site are not proposed at this time. Assessment of the Former Fiero Property is on-going and reported in more detail in the *2024 Fiero TGMP Summary Report* (Arcadis 2025b).

As outlined in the introduction, RACER Trust submitted a request to modify the Site GMP on August 29, 2024. The modification included removal of some monitoring wells/analytes from the GMP and the addition of PFAS monitoring. Following a comment period with the USEPA, and incorporation of several changes and additions to the draft 2024 GMP, USEPA approved of the draft 2024 GMP, with conditions, on October 30th, 2024 (**Appendix C**). Based on the 2024 results and follow-up correspondence with the USEPA, a final GMP will be submitted to USEPA in 2025 to establish the final set of wells used for future monitoring at the Site. The table below reflects the original additions to the 2024 GMP requested by the USEPA, as well as recommendations based on the August 2025 discussion following the submittal of the draft 2024 Annual Groundwater Monitoring Report. The agreed upon path forward includes the following:

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- Continue the evaluation and Former Fiero Property monitoring to monitor the vapor intrusion pathway and potential risk to off-site receptors related to VOCs detected in groundwater as described in the *2024 Fiero TGMP Summary Report* (Arcadis 2025b).
- Finalize the 2025 GMP based on USEPA comments provided via email on August 13 ,2025 and discussed during the August 2025 routine Site update call.

Well	2024 Analysis	2024 Data Result	Recommendation
MWM16-02	VOCs	Non-detect	No further monitoring Abandon well
MWM16-37	VOCs	Non-detect	USEPA requested continued monitoring for VOCs
MWM2-22	VOCs	VC detected near the GSI criteria	Include well in the revised GMP for upgradient monitoring of VOCs
MWM2-28	VOCs	Non-detect	USEPA requested continued monitoring for VOCs
MWF7-02	1,4-Dioxane	1,4-Dioxane is below applicable criteria, and concentrations are not increasing	USEPA requested continued monitoring for 1,4-dioxane
TW-10-01	1,4-Dioxane	1,4-Dioxane is below applicable criteria, and concentrations are not increasing	No further analysis for 1,4- Dioxane – this will be removed from the sampling plan for 2025.
MWW01-SEN03	Metals/TDS	Metals: Above RHBDW TDS: Above GSI criteria	Not recommended for continued metals analysis as there are several downgradient property boundary wells that are currently part of the revised GMP. Retain for TDS analysis.
MWOS-01	VOCs/1,4-Dioxane/TDS	Below applicable criteria except for TDS	Continue to include in sampling program for VOCs/1,4-Dioxane/TDS
MWOS-02	VOCs/1,4- Dioxane/PFAS/TDS	Below applicable criteria except for TDS	Continue to include in sampling program for VOCs/1,4-Dioxane/TDS

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Well	2024 Analysis	2024 Data Result	Recommendation
MWOS-05	Metals/PCBs/PFAS/TDS	Metals: Above applicable criteria PCBs: Non-detect PFAS: Non-detect TDS: Above GIS criteria	Include well in the revised GMP for analysis of metals and PFAS. No further analysis for PCBs and TDS (concentrations lower than Montcalm Street area wells).
MWF12-01R	1,4-Dioxane	1,4-Dioxane is below applicable criteria, and concentrations are not increasing	USEPA requested continued monitoring for 1,4-dioxane
MWF12-02R	Metals/TDS	Metals: Above applicable criteria TDS: Above GSI criteria	Include well in revised GMP for analysis of metals and TDS.
MWF16-25; MWF16-26; MWOS-9R; and MWOS-10	PFAS	Below applicable criteria	Included in revised GMP for perimeter monitoring of PFAS
MWM30-01	VOCs/PFAS	Below applicable criteria	Include in revised GMP for perimeter monitoring of VOCs and PFAS.
MWM32-09	VOCs	Non-detect	August 2025 USEPA request to add PFAS to monitoring program and will continue with VOCs
MW-03-17	PFAS	Above applicable criteria	Include well in the revised GMP for upgradient PFAS monitoring

In addition to the above, TDS sampling will be reduced to offsite and perimeter monitoring locations currently included in the GMP for other analysis, including MWOS-01, MWOS-02, MWOS-04, MWW1-06, MWF12-02R, MW-01-17, MWW1-02, MWW1-04, MWW1-SEN03, SEEP VAULT, TW-MD-02, and TW-MD-05.

The final 2025 GMP will be submitted to USEPA under separate cover.

5 References

- Arcadis. 2024. DRAFT Groundwater Monitoring Plan. Pontiac North Campus. October 3, 2024.
- Arcadis. 2025a. LNAPL Assessment Update – MWM32-04 and TW-MD-06. Pontiac North Campus. January 3.
- Arcadis. 2025b. 2024 Fiero Temporary Groundwater Monitoring Plan Summary. Pontiac North Campus. August 8.
- 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) 2020. Former Fiero Assembly Site-Specific Criteria Evaluation. April 21, 2020.
- EGLE. 2021. Guidance Document for the Vapor Intrusion Pathway. Appendix C – Volatilization to Indoor Air Pathway (VIAP) Screening Levels. March 2021.
- EGLE. 2023. Clean Up Criteria Requirements Table 1: Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, October 12, 2023.
- 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. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. EPA 530/R-09-007. March.

Tables

Well ID	Screen Interval (ft bgs)	Gauging	VOCs	1,4-Dioxane	Inorganics	PCB's	PFAS	Primary Function
Offsite								
MWOS-01	4 - 14	A	A	A	X - Mn			Offsite sentinel monitoring; USEPA requested manganese
MWOS-02	6 - 16	A	A	A	X - Mn		A	Offsite sentinel monitoring; USEPA requested manganese
MWOS-04	3 - 13	A		A	A		A	Offsite sentinel monitoring
MWOS-05	2 - 12	X			X - Mn	X	X	USEPA Request
MWOS-09R	27.5 - 32.5	A					A	Offsite sentinel monitoring
MWOS-10	28.5 - 33.5	A					A	Offsite sentinel monitoring
MWW1-06	4 - 16	A			A		A	Offsite sentinel monitoring
Fiero Properties								
MW-02-17	25 - 30	A						Groundwater elevation
MWF7-02	18 - 28	A		X				Groundwater elevation; USEPA requested 1,4-dioxane
MWF8-01	18 - 28	A						Groundwater elevation
MWF12-01R	15 - 20	A		X				Groundwater elevation; USEPA requested 1,4-dioxane
MWF12-02R	18 - 23	A	A		X - Mn		A	Perimeter monitoring; USEPA requested manganese
MWF16-05	22 - 32	A						Groundwater elevation
MWF16-06	19 - 29	A						Groundwater elevation
MWF16-25	27 - 37	A					A	Perimeter monitoring
MWF16-26	27.5 - 37.5	A					A	Perimeter monitoring
PZF17-05	24 - 34	A						Groundwater elevation
Southern Metal Fabrication Division								
MW-01-17	3 - 8	A			A		A	Perimeter monitoring
MW-03-17	18 - 22	X					X	USEPA Request
MW-43-14R	25 - 30	A						Groundwater elevation
MWM2-22	15 - 25	X	X					USEPA Request
MWM2-28	13 - 23	A	X					Groundwater elevation; USEPA requested VOCs
MWW01-SEN03	35.2 - 45.2	X			X			USEPA Request for iron, manganese and total dissolved solids
MWW1-02	1 - 11	A			A		A	Perimeter monitoring / LNAPL Monitoring
MWW1-04	3 - 13	A			A		A	Perimeter monitoring
MWW10-SEN01	14.5 - 19.5	A						Groundwater Elevation / LNAPL Monitoring
MWW10-SEN02	15 - 25	A						Groundwater Elevation / LNAPL Monitoring
MWW10-03	6 - 16	A					A	Perimeter monitoring / LNAPL Monitoring
MWW10-04	4 - 14	A						Groundwater Elevation / LNAPL Monitoring
SEEP VAULT	--				A		A	Perimeter monitoring
TW-10-01*	25 - 30	A		X				Groundwater elevation; USEPA requested 1,4-dioxane
TW-MD-02	4.5 - 9.5	A			A			Perimeter monitoring / LNAPL Monitoring
TW-MD-05	6 - 11	A			A			Perimeter monitoring / LNAPL Monitoring
TW-MD-06**	5 - 15	A						Groundwater Elevation / LNAPL Monitoring
Northern Metal Fabrication Division								
MWM16-02	19 - 29	X	X					USEPA Request
MWM16-37	25 - 35	A	X					Groundwater elevation; USEPA requested VOCs
MWM16-30***	23 - 33	X	X					USEPA Request
MWM30-01	24 - 34	A	A				X	Perimeter monitoring; USEPA requested PFAS
MWM32-04	27 - 37	A						Groundwater Elevation / LNAPL Monitoring
MWM32-09	14 - 24	A	A					Perimeter monitoring

Notes:

A = Annual (Alternating 1Q and 3Q of each year)

Fe = iron

ft bgs = feet below ground surface

Inorganics = select metals (manganese and iron), pH, and total dissolved solids

LNAPL = light non-aqueous phase liquid

Mn = manganese

PFAS = per- and polyfluoroalkyl substances

TDS = total dissolved solids

VOCs = volatile organic compounds

X = USEPA requested additional sampling

* = USEPA requested TW-10-02 be sampled; however, this monitoring well was observed to be damaged; therefore, TW-10-01 was sampled instead as it was in the vicinity of TW-10-02.

** = LNAPL was present in the monitoring well; therefore, no groundwater sample was collected for analysis

*** = Monitoring well MWM16-30 was unable to located and was not sampled

Table 2
Groundwater Elevation Summary, November 2024
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Well ID	Well Elevation ¹	Depth to Water (ft)	Depth to LNAPL (ft)	Total Depth (ft)	Groundwater Elevation (AMSL)	LNAPL Thickness (ft)	Equivalent Groundwater Elevation ²
Offsite							
MWOS-01	943.79	7.45	--	12.96	936.34	--	--
MWOS-02	943.46	7.50	--	15.91	935.96	--	--
MWOS-04	942.52	4.28	--	12.90	938.24	--	--
MWOS-05	944.26	3.96	--	11.49	940.30	--	--
MWOS-09R	976.18	27.32	--	32.20	948.86	--	--
MWOS-10	976.55	28.52	--	32.77	948.03	--	--
MWW1-06	943.63	6.35	--	14.12	937.28	--	--
Fiero Properties							
MW-02-17	972.52	25.90	--	29.72	946.62	--	--
MWF7-02	970.58	19.20	--	19.72	951.38	--	--
MWF8-01	972.94	18.52	--	27.62	954.42	--	--
MWF12-01R	967.99	20.50	--	23.23	947.49	--	--
MWF12-02R	961.91	13.72	--	22.50	948.19	--	--
MWF16-05	973.68	20.50	--	22.80	953.18	--	--
MWF16-06	973.77	15.11	--	28.66	958.66	--	--
MWF16-25	975.24	26.10	--	37.22	949.14	--	--
MWF16-26	974.14	24.55	--	36.72	949.59	--	--
Southern Metal Fabrication Division							
MW-01-17	949.40	7.89	--	10.75	941.51	--	--
MW-03-17	964.77	10.82	--	21.90	953.95	--	--
MW-43-14R	975.63	27.30	--	33.54	948.33	--	--
MWM2-22	971.12	17.95	--	24.36	953.17	--	--
MWM2-28	971.29	17.90	--	25.78	953.39	--	--
MWW01-SEN03	981.67	37.53	--	48.05	944.14	--	--
MWW1-02	946.08	5.03	--	15.09	941.05	--	--
MWW1-04 ³	944.20	8.79	--	16.36	935.41	--	--
MWW10-SEN01	967.31	17.88	--	22.49	949.43	--	--
MWW10-SEN02	967.68	25.67	--	28.35	942.01	--	--
MWW10-03	958.20	8.77	--	11.64	949.43	--	--
MWW10-04	961.49	10.48	--	17.94	951.01	--	--
TW-10-01	971.91	20.43	--	32.79	951.48	--	--
TW-MD-02	945.98	6.36	--	12.49	939.62	--	--
TW-MD-05	946.71	5.60	--	13.32	941.11	--	--
TW-MD-06	947.08	6.24	6.08	NM	940.84	0.16	940.98
Northern Metal Fabrication Division							
MWM16-02	979.83	22.05	--	28.68	957.78	--	--
MWM16-37	980.37	22.47	--	35.25	957.90	--	--
MWM30-01	979.76	23.29	--	34.61	956.47	--	--
MWM32-04	983.70	28.63	26.83	NM	955.07	1.8	956.37
MWM32-09	982.10	23.31	--	25.86	958.79	--	--
Former Fiero Parking Lot							
PZF17-01	963.37	11.16	--	15.53	952.21	--	--
PZF17-02	977.43	24.01	--	31.52	953.42	--	--
PZF17-03	967.04	15.97	--	22.63	951.07	--	--
PZF17-04	972.47	20.09	--	28.90	952.38	--	--
PZF17-05	975.97	26.14	--	34.05	949.83	--	--

Notes:

1. All depth to waters measured from Top of Casing.
2. Water levels collected on November 4, 2024 unless otherwise listed below.
3. MWW1-04 was inaccessible at the time of the gauging event and was gauged the next day on November 5, 2024 when made accessible.

Abbreviations:

--	Not available
ft	Feet
LNAPL	Light non-aqueous phase liquid
NM	Not measured
NS	Well has not been surveyed
AMSL	Above mean sea level

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:

$$\text{Equivalent GW elevation} = \text{LNAPL surface elevation} - ((1 - \text{specific density of the LNAPL}) \times \text{LNAPL thickness})$$

Table 3
Summary of Detected Groundwater Analytical Results - Non-Fiero
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Parameters Units			Inorganics			PFAS																VOCs						
			Iron mg/L	Manganese mg/L	Total Dissolved Solids (TDS) mg/L	6:2 FTS ng/L	NEtFOSAA ng/L	NMeFOSAA ng/L	PFBS ng/L	PFBA ng/L	PFDS ng/L	PFDA ng/L	PFHpS ng/L	PFHpA ng/L	PFHxS ng/L	PFHxA ng/L	PFNA ng/L	FOSA ng/L	PFOS ng/L	PFOA ng/L	PFPeS ng/L	PFPeA ng/L	1,1- Dichloroethane ug/L	1,4- Dioxane ug/L	cis-1,2- Dichloroethene ug/L	Tetrachloroethene ug/L	Trichloroethene ug/L	Vinyl Chloride ug/L
Groundwater Surface Water Interface			--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	280	620	60	200	13
Nonresidential Drinking Water			0.3	0.05	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	350	70	5	5	2	
Residential Health Based Drinking Water			2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Residential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	56,000	95	130	10	2.1	
Nonresidential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	130,000	140	130	10	18	
Sample Location	Sample Date	Sample Type																										
MW-01-17*	9/18/2023	Duplicate	--	--	--	< 7.3 U	< 7.3 U	< 7.3 U	7.0	18 J	< 3.7 U	< 3.7 U	< 3.7 U	5.7	13	9.2	0.67 J	< 3.7 U	13	14	3.4 J	< 3.7 U	--	--	--	--	--	--
MW-01-17*	9/18/2023		--	--	--	< 7.4 U	< 7.4 U	< 7.4 U	4.9	< 3.7 UJ	< 3.7 U	< 3.7 U	< 3.7 U	6.0	13	9.6	0.72 J	< 3.7 U	14	13	< 3.7 U	< 3.7 U	--	--	--	--	--	--
MW-01-17*	11/7/2024		3.57 J	0.314	1,460	< 3.9 U	< 4.1 U	< 4.1 U	< 3.7 U	< 4.1 UJ	< 4.0 U	< 4.1 U	< 3.9 U	5.1	13.1	6.2	< 4.1 U	< 4.1 U	13.1	14.0	< 3.9 U	< 4.1 U	--	--	--	--	--	--
MW-03-17	5/2/2023	Duplicate	--	--	--	8.8 J	< 7.8 U	< 7.8 U	5.2	18 J	< 3.9 U	< 3.9 U	4.7	9.1	58	14	2.4 J	< 3.9 U	140	27	4.0	16	--	--	--	--	--	--
MW-03-17	5/2/2023		--	--	--	9.6 J	< 7.2 U	< 7.2 U	4.0	17 J	< 3.6 U	< 3.6 U	5.1	8.8	57	15	2.2 J	< 3.6 U	140	27	3.8	16	--	--	--	--	--	--
MW-03-17	9/21/2023		--	--	--	8.0 J	< 7.3 U	< 7.3 U	3.3 J	15	< 3.6 U	< 3.6 U	4.5	8.6	32	14	2.5 J	1.4 J	140	20	2.7 J	15	--	--	--	--	--	--
MW-03-17	11/6/2024		--	--	--	< 10 U	< 10.5 U	< 10.5 U	15.4	< 10.5 U	< 10.1 U	< 10.5 U	< 10 U	< 10.5 U	36.4	< 10.5 U	< 10.5 U	< 10.5 U	200	18.5	< 9.8 U	< 10.5 U	--	--	--	--	--	--
MWM16-37*	9/14/2023	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U	2
MWM16-37*	9/14/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U	2
MWM16-37*	11/12/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
MWM2-22	9/25/2023	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	14	8	8	12	
MWM2-22	9/25/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	14	9	9	12	
MWM2-22	11/5/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18	--	11	2	5	12	
MWM30-01*	4/25/2023	Duplicate	--	--	--	34 J	< 8.1 U	< 8.1 U	4.6	24 J	< 4.0 U	< 4.0 U	< 4.0 U	15	8.3	20	< 4.0 U	< 4.0 U	< 4.0 U	45	2.4 J	18	--	--	--	--	--	--
MWM30-01*	9/14/2023		--	--	--	37 J	< 7.1 U	< 7.1 U	< 3.5 U	R	< 3.5 U	< 3.5 U	< 3.5 U	16	12	23	< 3.5 U	< 3.5 U	< 3.5 U	54	2.6 J	21	--	--	--	--	--	--
MWM30-01*	5/29/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1	--	< 1	< 1	< 1	< 1	< 1
MWM30-01*	11/8/2024		--	--	--	27.8 J	< 4.0 U	< 4.0 U	< 3.5 UJ	< 4.0 UJ	< 3.9 U	< 4.0 U	< 3.8 U	16.2	13.7	14.1	< 4.0 U	< 4.0 U	4.7	39.7	< 3.8 U	12.8	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U
MWM30-01*	11/8/2024		--	--	--	30.3 J	< 3.9 U	< 3.9 U	19.0 J	< 3.9 UJ	< 3.8 U	< 3.9 U	< 3.7 U	15.6	14.3	17.6	< 3.9 U	< 3.9 U	5.2	39.6	< 3.7 U	14.8	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U
MWOS-01*	9/13/2023		--	0.144	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U
MWOS-01*	11/5/2024		1.63	0.293	1,210	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	26	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
MWOS-02*	9/13/2023		--	0.311	--	< 8.0 U	< 8.0 U	< 8.0 U	4.3	7.9	< 4.0 U	< 4.0 U	< 4.0 U	1.5 J	6.8	2.9 J	< 4.0 U	< 4.0 U	9.5	7.0	1.6 J	2.5 J	< 1 U	--	< 1 U	< 1 U	< 1 U	< 1 U
MWOS-02*	11/8/2024		0.66	0.401	1,340	< 1.9 U	< 2.0 U	< 2.0 U	4.7	6.1	< 2.0 U	< 2.0 U	< 1.9 U	< 2.0 U	6.3	< 2.0 U	< 2.0 U	< 2.0 U	7.8	5.1	< 1.9 U	< 2.0 U	< 1 U	7	< 1 U	< 1 U	< 1 U	< 1 U
MWOS-04*	9/13/2023		--	0.234 J	--	< 7.4 U	< 7.4 U	< 7.4 U	< 3.7 U	< 3.7 UJ	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	--	37	--	--	--	--	
MWOS-04*	11/7/2024		6.95	0.192	1,510	< 9.9 U	< 10.4 U	< 10.4 U	< 9.2 U	< 10.4 UJ	< 10.0 U	< 10.4 U	< 9.9 U	< 10.4 U	< 9.5 U	< 10.4 U	< 10.4 U	< 10.4 U	< 9.6 U	< 10.4 U	< 9.8 U	< 10.4 U	--	34	--	--	--	--
MWOS-05*	4/27/2023	Duplicate	--	--	--	< 6.9 U	< 6.9 U	< 6.9 U	2.9 J	12	< 3.5 U	< 3.5 U	< 3.5 U	< 3.5 U	2.3 J	< 3.5 U	< 3.5 U	< 3.5 U	2.7 J	2.1 J	< 3.5 U	2.5 J	--	--	--	--	--	--
MWOS-05*	9/13/2023		--	0.901 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MWOS-05*	11/8/2024		19.8	1.58	790	< 19.8 U	< 20.8 U	< 20.8 U	< 18.4 U	< 20.8 U	< 20.1 U	< 20.8 U	< 19.8 U	< 20.8 U	< 18.9 U	< 20.8 U	< 20.8 U	< 20.8 U	< 19.2 U	< 20.8 U	< 19.5 U	< 20.8 U	--	--	--	--	--	--
MWOS-05*	11/8/2024		20.2	1.53	852	< 19.9 U	< 21.0 U	< 21.0 U	< 18.6 U	31.4	< 20.2 U	< 21.0 U	< 19.9 U	< 21.0 U	< 19.1 U	< 21.0 U	< 21.0 U	< 21.0 U	< 19.4 U	< 21.0 U	< 19.7 U	< 21.0 U	--	--	--	--	--	--
MWOS-05*	11/8/2024		20.2	1.53	852	< 19.9 U	< 21.0 U	< 21.0 U	< 18.6 U	31.4	< 20.2 U	< 21.0 U	< 19.9 U	< 21.0 U	< 19.1 U	< 21.0 U	< 21.0 U	< 21.0 U	< 19.4 U	< 21.0 U	< 19.7 U	< 21.0 U	--	--	--	--	--	--
MWW01-SEN03*	9/21/2023	Duplicate	22.4	0.451	1,570	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MWW01-SEN03*	11/7/2024		20.6 J	0.554	1,420	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MWW10-03	9/15/2023		--	--	--	< 7.5 U	< 7.5 U	< 7.5 U	12	21	< 3.8 U	< 3.8 U	1.6 J	30	44	29	< 3.8 U	< 3.8 U	< 3.8 U	50	15	27	--	--	--	--	--	--
MWW10-03	11/8/2024		--	--	--	< 1.8 U	< 1.9 U	< 1.9 U	< 1.7 U	7.0 J	< 1.9 U	< 1.9 U	< 1.8 U	2.3	2.1	2.2	< 1.9 U	< 1.9 U	23.4	10.7	< 1.8 U	< 1.9 U	--	--	--	--	--	--
MWW1-02*	9/19/2023		--	--	--	< 8.0 U	< 8.0 U	< 8.0 U	< 4.0 U	43	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	15 J	< 4.0 U	< 4.0 U	< 4.0 U	66	15 J	< 4.0 U	< 4.0 U	--	--	--	--	--	--
MWW1-02*	11/7/2024		29.0 J	0.844	1,250	< 19.9 U	< 20.9 U	< 20.9 U	< 18.5 U	< 20.9 U	< 20.2 U	< 20.9 U	< 19.9 U	< 20.9 U	< 19.0 U	< 20.9 U	< 20.9 U	< 20.9 U	53.2	< 20.9 U	< 19.7 U	< 20.9 U	--	--	--	--	--	--
MWW1-04*	5/2/2023		--	--	--	< 7																						

Table 4
Summary of Detected Groundwater Analytical Results - Fiero
2024 Annual Groundwater Monitoring Report
RACER Trust Pontiac North Campus
Pontiac, Michigan

Parameters Units			Inorganics			PFAS										VOCs	
			Iron mg/L	Manganese mg/L	Total Dissolved Solids (TDS) mg/L	6:2 (FTS) ng/L	PFBS ng/L	PFBA ng/L	PFHpS ng/L	PFHpA ng/L	PFHxS ng/L	PFHxA ng/L	PFOS ng/L	PFOA ng/L	PFPeS ng/L	PFPeA ng/L	1,4-Dioxane ug/L
Groundwater Surface Water Interface			--	1.3	500	--	670,000	--	--	--	210	--	12	170	--	--	280
Nonresidential Drinking Water			0.3	0.05	--	--	420	--	--	--	51	400,000	16	8	--	--	350
Residential Health Based Drinking Water			2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--
Res Fiero SSVIAC SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	43,000
Res Fiero SSVIAC BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	22,000
NR Fiero SSVIAC <50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,500,000
NR Fiero SSVIAC <50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	670,000
NR Fiero SSVIAC >50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,300,000
NR Fiero SSVIAC >50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,000,000
Sample Location	Sample Date	Sample Type															
MWF12-01R*	11/7/2024	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15
MWF12-01R*	11/7/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	13
MWF12-02R*	4/25/2023	Duplicate	--	--	--	< 7.6 U	3.7 J	22	< 3.8 U	4.4	5.9	12	4.0	11	1.6 J	14	--
MWF12-02R*	9/12/2023		--	0.439	--	< 6.9 U	3.9	20	< 3.4 U	3.5	4.6	8.9	9.0	9.6	< 3.4 U	11	< 2 UB
MWF12-02R*	9/12/2023		--	0.441	--	--	--	--	--	--	--	--	--	--	--	--	< 1 UB
MWF12-02R*	11/7/2024		0.29	0.733	732	< 2.1 U	9.1	27.7 J	< 2.1 U	5.2	3.6	11.8	4.5	7.4	< 2.0 U	12.8	--
MWF16-25*	9/12/2023		--	--	--	< 8.0 U	12	13	< 4.0 U	8.0	22	13	< 4.0 U	20	10	9.2	--
MWF16-25*	11/6/2024		--	--	--	< 1.9 U	9.6	12.0	< 1.9 U	5.9	18.2	12.3	< 1.9 U	11.3	7.9	10.7	--
MWF16-26*	5/2/2023		--	--	--	< 7.1 U	15	8.6	< 3.6 U	7.3	24	17	< 3.6 U	34	14	12	--
MWF16-26*	9/12/2023		--	--	--	8.4	17	11	0.98 J	5.8	21	22	2.0 J	34	11	24	--
MWF16-26*	11/6/2024		--	--	--	< 1.9 U	19.2	18.8	< 1.9 U	10.1	25.4	30.4	< 1.9 U	25.1	22.9	20.1	--
MWF7-02	9/12/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	240
MWF7-02	11/5/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	176
MWOS-09R*	9/12/2023		--	--	--	3.5 J	6.3	9.8	< 3.5 U	10	10	11	< 3.5 U	19	5.0	11	--
MWOS-09R*	11/6/2024		--	--	--	< 2.0 U	7.4	9.5 J	< 2.0 U	9.0	17.1	10.5	< 1.9 U	50.0	4.2	11.2	--
MWOS-10*	9/12/2023		--	--	--	3.0 J	7.5	14	< 4.4 U	11	13	15	< 4.4 U	10	5.0	14	--
MWOS-10*	11/8/2024		--	--	--	< 2.3 U	5.4	18.5 J	< 2.3 U	10.4	14.4	27.7	< 2.2 U	7.2	3.9	21.7	--

Notes:

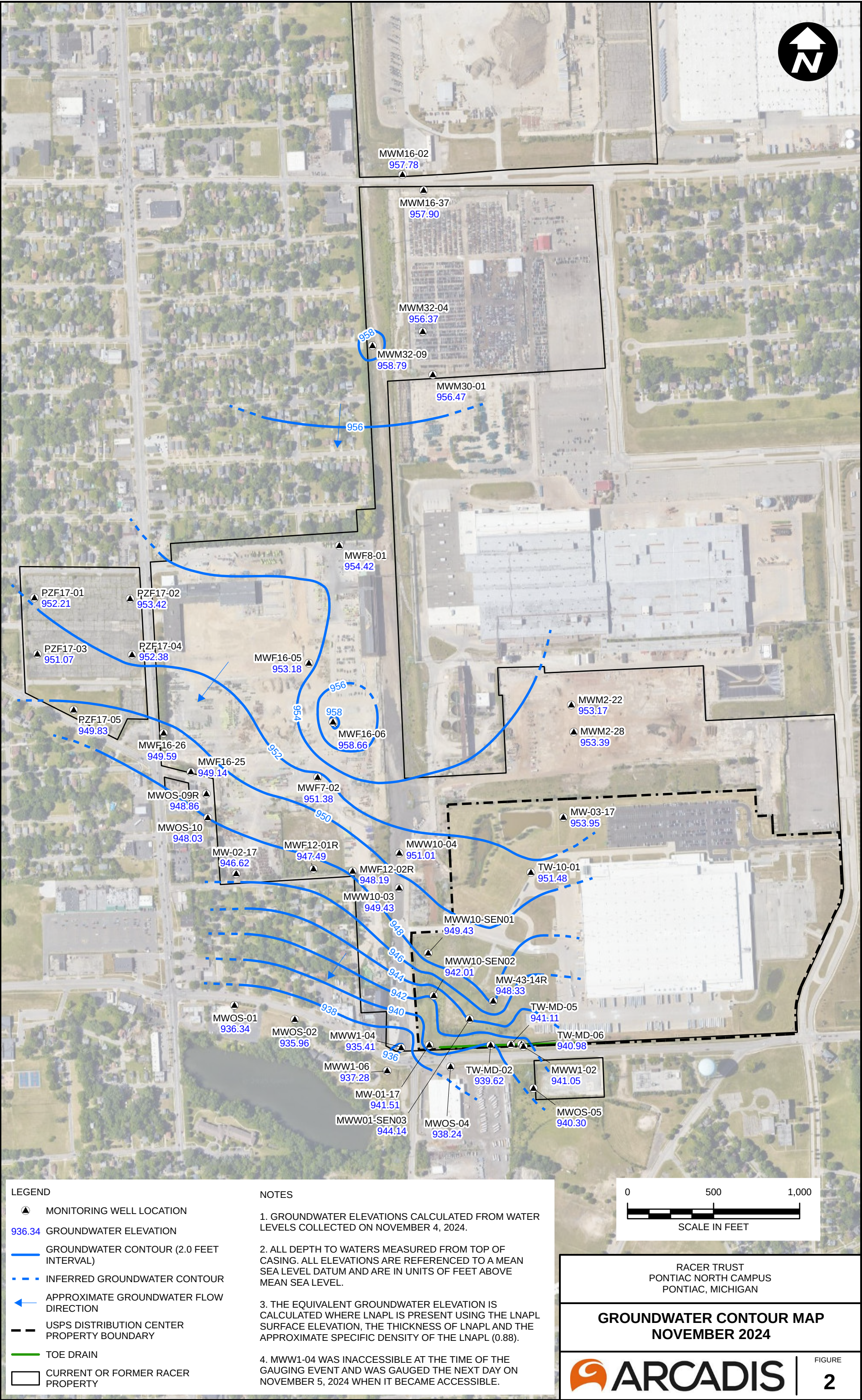
- Criteria listed are from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, October 12, 2023
- Residential and Nonresidential Volatilization to Indoor Air Pathway Screening Levels (Groundwater Not in Contact) site specific criteria provided by Michigan Department of Environment, Great Lakes, and Energy
- Samples denoted with an asterisk (*) are located within 100 feet, or are outside, of the site property boundary and are subject to residential exposure criteria
- Groundwater Surface Water Interface Criteria listed for manganese are calculated based on a hardness of 150 mg/L-CaCO3 for southern Lower Peninsula protected as a drinking water source.
- Grey shaded values denotes exceedance and/or equal to Michigan Groundwater Surface Water Interface criteria.
- Orange highlighted values denotes exceedance and/or equal to Michigan Non-Residential Drinking Water.
- Bold values denote exceedance and/or equal to Residential Health Based Drinking Water criteria.
- Values in italics denotes exceedance and/or equal to Residential Site-Specific Volatilization to Indoor Air criteria for basement and/or slab-on-grade.
- Values in red denotes exceedance and/or equal to Nonresidential Site-Specific Volatilization to Indoor Air criteria for basement and/or slab-on-grade.
- Samples were analyzed for PFAS by USEPA Modified 537 with Isotopic Dilution; Metals by SW3015A; VOCs by SW5030C/8260C; and TDS by SM2540C

Abbreviations:

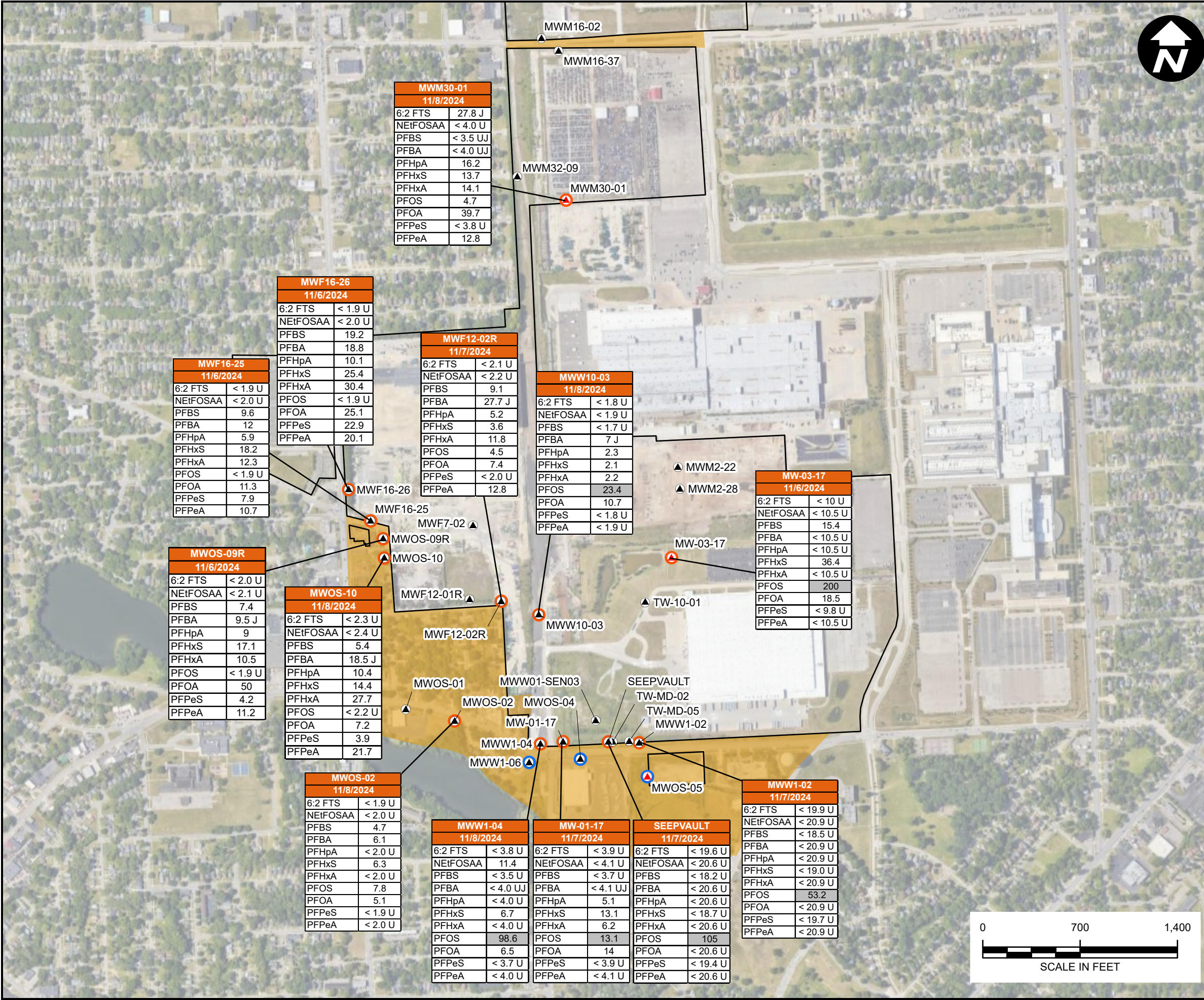
ng/L - Nanograms per liter
mg/L - Milligrams per liter
ug/L - Micrograms per liter
< - Not detected above the laboratory reporting limit
B - Compound also found in associated method blank
J - Estimated value less than reporting limit, but greater than MDL
PFAS - Per- and Polyfluoroalkyl Substances
VOCs - Volatile Organic Compounds
U - Compound was analyzed for but not detected. The associated value is the compound quantitation limit
Res - Residential
NR - Non-Residential
SSVIAC - Site-specific Volatilization to Indoor Air Criteria
SOG - Slab-On-Grade Scenario
BASE - Basement Scenario
<50k - Less than 50,000 square feet
>50k - Greater than 50,000 square feet

Figures

CITY: NOVI, MI DIV: ENV DB: TRY PIC: J. BARRETT TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquor\Company\PontiacNorthCampusDocuments\GW_Analytical_Summary_2025.aprx Layout: GroundwaterElev_Sitewide 2025 PLOTTED: 4/7/2025 2:34 PM BY: TYarborough



CITY: NOVI DIV: ENV DB: TRY PIC:J. Barrett PM: T. Linder TM: L. Nickerson TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampusDocuments\GW_Analytical_Summary\GW_Analytical_Summary_2024.aprx PLOTTED: 6/24/2025 1:35 PM BY: TYabrough



LEGEND

- GMP MONITORING WELL
- MONITORING WELL ADDED FOR PFAS SAMPLING PER USEPA REQUEST
- MONITORING WELL SAMPLED AND PFAS DETECTED
- MONITORING WELL SAMPLED AND PFAS NOT DETECTED
- OFF-SITE GROUNDWATER ORDINANCE EXTENT
- CURRENT OR FORMER RACER PROPERTY

Analyte	Groundwater Surface Water Interface
6:2 FTS	--
NEtFOSAA	--
PFBS	670,000
PFBA	--
PFHpA	--
PFHxS	210
PFHxA	--
PFOS	12
PFOA	170
PFPeS	--
PFPeA	--

NOTES:

- ALL GROUNDWATER CONCENTRATIONS ARE PRESENTED IN NANOGRAMS PER LITER (ng/L).
- CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, OCTOBER 12, 2023.
- SAMPLES WERE ANALYZED FOR PFAS BY USEPA MODIFIED 537 WITH ISOTOPIC DILUTION.
- MONITORING WELLS WITHOUT CRITERIA COMPARISON WERE NOT SAMPLED FOR PFAS.

ABBREVIATIONS:

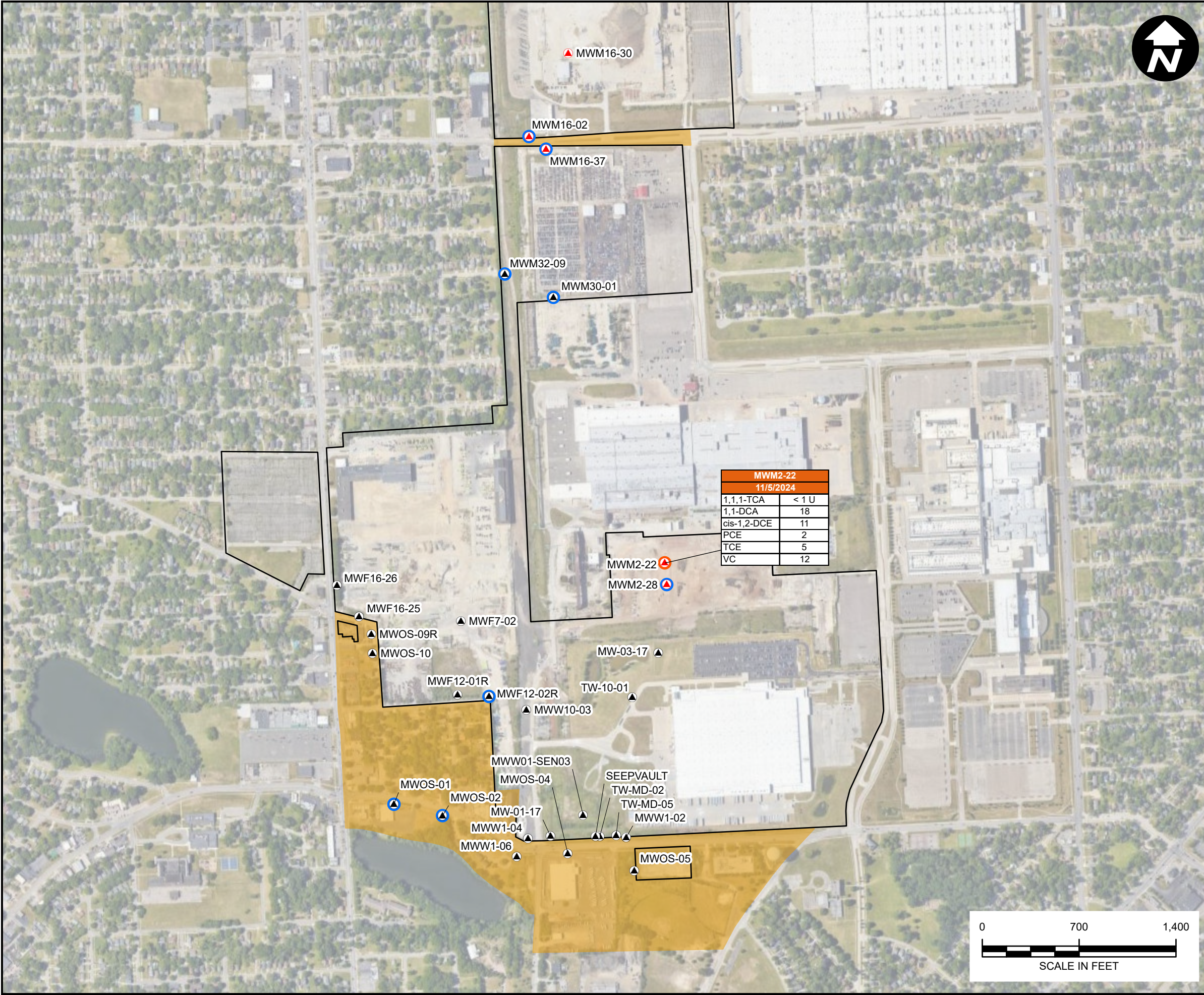
- U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
- J - ESTIMATED VALUE LESS THAN REPORTING LIMIT, BUT GREATER THAN MDL (METHOD DETECTION LIMIT)
- < - LESS THAN
- PFAS - PER- AND POLYFLUOROALKYL SUBSTANCES

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SUMMARY OF PFAS IN
GROUNDWATER - 2024



CITY: NOVI DIV: ENV DB: TRY PIC: J. Barrett PM: T. Linder TM: L. Nickerson TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampusDocuments\GW_Analytical_Summary_2024.aprx PLOTTED: 6/24/2025 1:35 PM BY: Tyabrough



LEGEND

- GMP MONITORING WELL
- MONITORING WELL ADDED FOR VOCs SAMPLING PER USEPA REQUEST
- MONITORING WELL SAMPLED AND VOCs DETECTED
- MONITORING WELL SAMPLED AND VOCs NOT DETECTED
- OFF-SITE GROUNDWATER ORDINANCE EXTENT
- CURRENT OR FORMER RACER PROPERTY

Analyte	Groundwater Surface Water Interface	Residential VIAP	Nonresidential VIAP
1,1,1-Trichloroethane	89	14,000	19,000
1,1-Dichloroethane	740	130	300
cis-1,2-Dichloroethene	620	95	140
Tetrachloroethene	60	130	130
Trichloroethene	200	10	10
Vinyl chloride	13	2.1	18

NOTES:

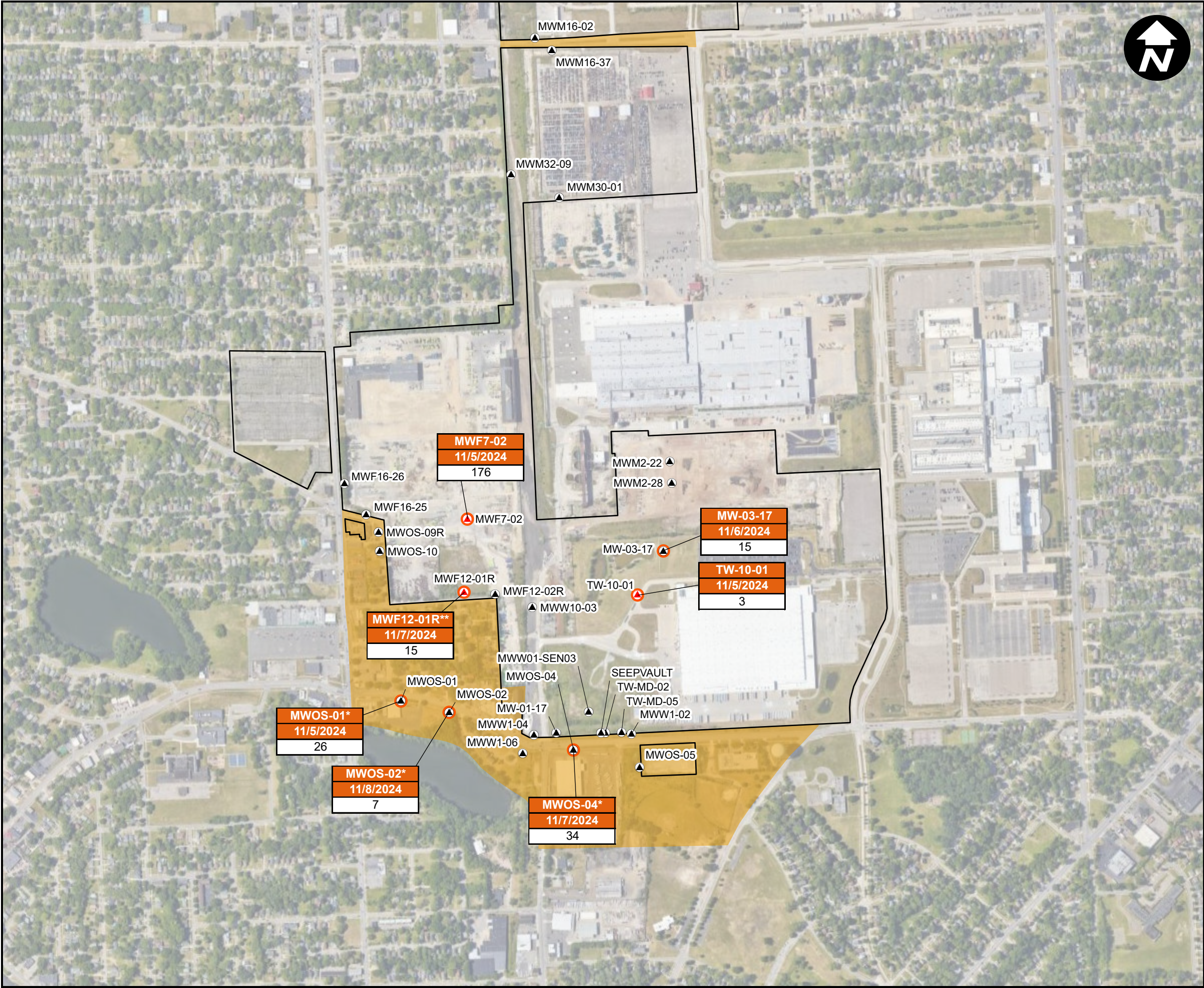
- ALL GROUNDWATER CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (UG/L)
 - CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, OCTOBER 12, 2023.
 - RESIDENTIAL AND NONRESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS (GROUNDWATER NOT IN CONTACT) ARE FROM THE EGLE GUIDANCE DOCUMENT FOR THE VAPOR INTRUSION PATHWAY, APPENDIX C - TABLES 1 AND 2, MARCH 2021.
 - SAMPLES WERE ANALYZED FOR VOCs BY SW5030C/ 8260C.
 - MONITORING WELLS WITHOUT CRITERIA COMPARISON WERE NOT SAMPLED FOR VOCs.
- ABBREVIATIONS:
- VIAP - VOLATILIZATION TO INDOOR AIR PATHWAY
- VOCs - VOLATILE ORGANIC COMPOUNDS
- U - COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.
- < - LESS THAN

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SUMMARY OF VOCs IN
GROUNDWATER - 2024



CITY: NOVI DIV: ENV DB: TRY PIC: J. Barrett PM: T. Linder TM: L. Nickerson TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampusDocuments\GW_Analytical_Summary_2024.aprx PLOTTED: 6/24/2025 1:35 PM BY: TYabrough



LEGEND

- GMP MONITORING WELL
- MONITORING WELL ADDED FOR 1,4-DIOXANE SAMPLING PER USEPA REQUEST
- MONITORING WELL SAMPLED AND 1,4-DIOXANE DETECTED
- OFF-SITE GROUNDWATER ORDINANCE EXTENT
- CURRENT OR FORMER RACER PROPERTY

Analyte	Groundwater Surface Water Interface	Residential VIAP*	Nonresidential VIAP	Res Fiero SSVIAC BASE**	NR Fiero SSVIAC <50k BASE
1,4-Dioxane	280	56,000	130,000	22,000	670,000

NOTES:

- ALL GROUNDWATER CONCENTRATIONS ARE PRESENTED IN MICROGRAMS PER LITER (µg/L).
- CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, OCTOBER 12, 2023.
- RESIDENTIAL AND NONRESIDENTIAL VOLATILIZATION TO INDOOR AIR PATHWAY SCREENING LEVELS (GROUNDWATER NOT IN CONTACT) ARE FROM THE EGLE GUIDANCE DOCUMENT FOR THE VAPOR INTRUSION PATHWAY, APPENDIX C - TABLES 1 AND 2, MARCH 2021.
- CRITERIA LISTED ARE FROM THE EGLE FORMER FIERO ASSEMBLY SITE-SPECIFIC CRITERIA EVALUATION DATED APRIL 21, 2020.
- SAMPLES WERE ANALYZED FOR 1,4-DIOXANE BY SW5030C/8260C.
- SAMPLES DENOTED WITH AN ASTERISK (*) ARE LOCATED WITHIN 100 FEET, OR ARE OFF-SITE, AND ARE COMPARED TO RESIDENTIAL VIAP CRITERIA.
- SAMPLES DENOTED WITH DOUBLE ASTERISKS (**) ARE LOCATED WITHIN 100 FEET, OR ARE OFF-SITE, AND ARE COMPARED TO RESIDENTIAL FIERO SSVIAC EXPOSURE CRITERIA.
- MONITORING WELLS WITHOUT CRITERIA COMPARISON WERE NOT SAMPLED FOR 1,4-DIOXANE.

ABBREVIATIONS:

VIAP - VOLATILIZATION TO INDOOR AIR PATHWAY
RES - RESIDENTIAL
SSVIAC - SITE SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA
BASE - BASEMENT
NR - NONRESIDENTIAL
<50K - LESS THAN 50,000

07001,400

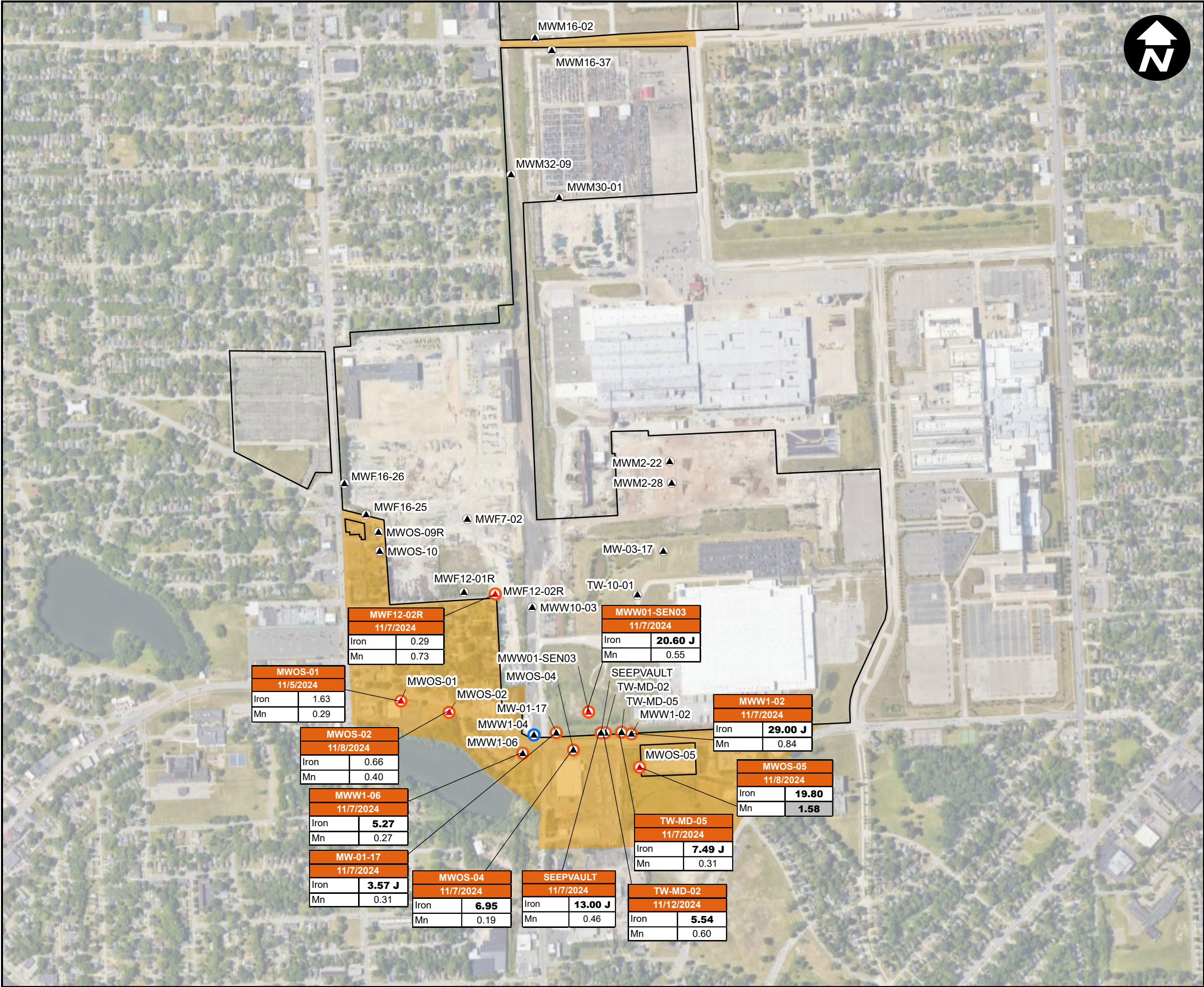
SCALE IN FEET

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

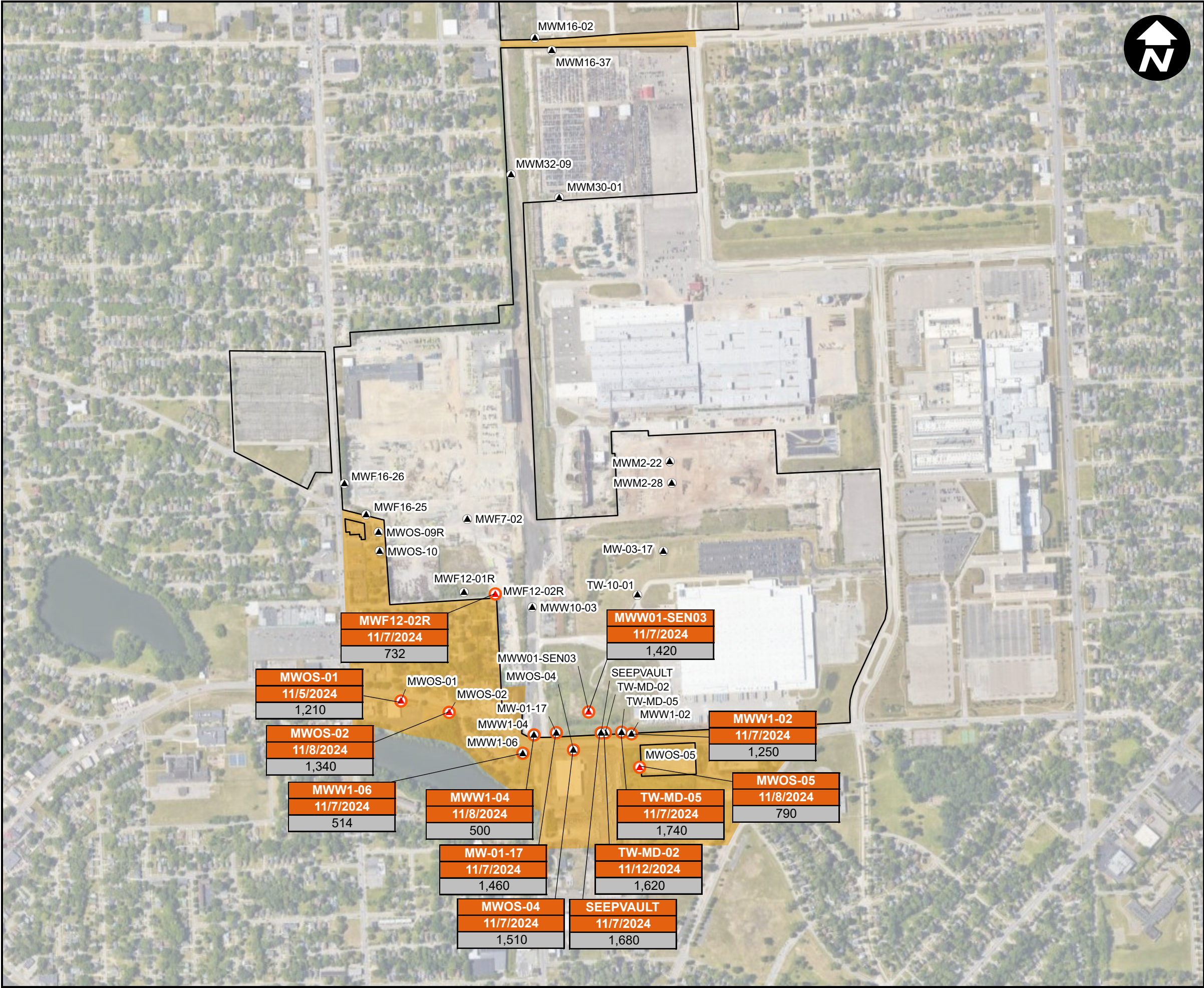
SUMMARY OF 1,4-DIOXANE IN
GROUNDWATER - 2024

FIGURE
5

CITY: NOVI DIV: ENV DB: TRY PIC: J. Barrett PM: T. Linder TM: L. Nickerson TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampusDocuments\GW_Analytical_Summary\GW_Analytical_Summary_2024.aprx PLOTTED: 6/24/2025 1:35 PM BY: TYabrough



CITY: NOVI DIV: ENV DB: TRY PIC: J. Barrett PM: T. Linder TM: L. Nickerson TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampusDocuments\GW_Analytical_Summary_2024.aprx PLOTTED: 6/24/2025 1:35 PM BY: TYabrough



LEGEND

- GMP MONITORING WELL
- MONITORING WELL ADDED FOR TOTAL DISSOLVED SOLIDS SAMPLING PER USEPA REQUEST
- MONITORING WELL SAMPLED AND TOTAL DISSOLVED SOLIDS DETECTED
- OFF-SITE GROUNDWATER ORDINANCE EXTENT
- CURRENT OR FORMER RACER PROPERTY

Analyte	Groundwater Surface Water Interface
Total dissolved solids	500

NOTES:

1. ALL GROUNDWATER CONCENTRATIONS ARE PRESENTED IN MILIGRAMS PER LITER (mg/L).

2. CRITERIA LISTED ARE FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) CLEAN UP CRITERIA REQUIREMENTS TABLE 1: RESIDENTIAL AND NONRESIDENTIAL, PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS, OCTOBER 12, 2023.

3. SAMPLES WERE ANALYZED FOR TDS BY SM2540C.

4. MONITORING WELLS WITHOUT CRITERIA COMPARISON WERE NOT SAMPLED FOR TDS.

TDS - TOTAL DISSOLVED SOLIDS

0 700 1,400

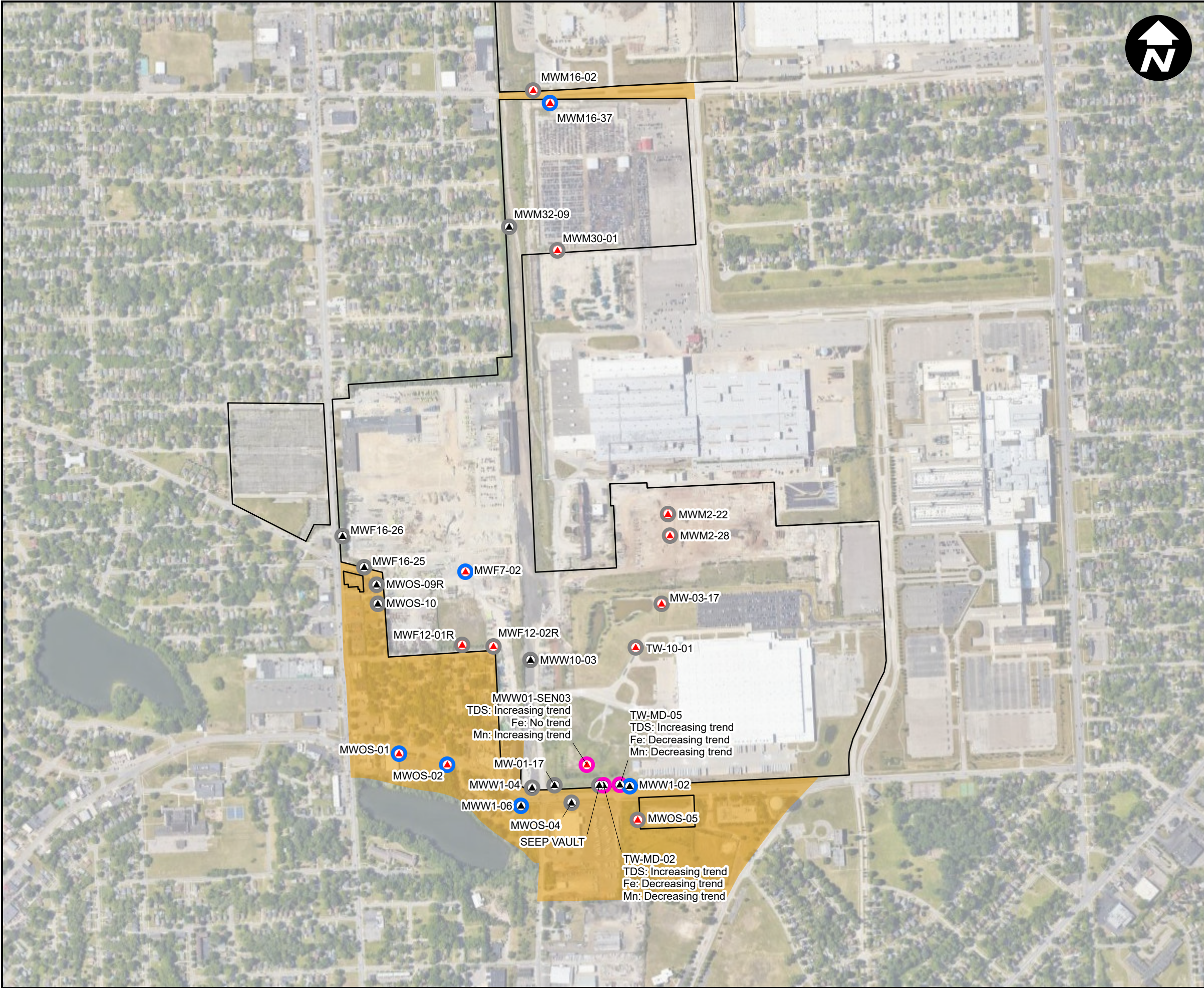
SCALE IN FEET

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SUMMARY OF TOTAL DISSOLVED SOLIDS IN GROUNDWATER - 2024

FIGURE
7

CITY: NOVI DIV: ENV DB: TRY PIC: J. Barrett PM: T. Linder TM: L. Nickerson TR: PROJECT NUMBER: 30267726 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
D:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampusDocuments\GW_Analytical_Summary_2024.aprx PLOTTED: 6/24/2025 1:35 PM BY: Tyabrough



LEGEND

- GMP MONITORING WELL
- MONITORING WELL ADDED FOR SAMPLING OF ONE ANALYTE OR MORE, PER USEPA REQUEST
- DOES NOT MEET CRITERIA FOR TREND ANALYSIS
- INCREASING TREND OBSERVED
- DECREASING OR NO SIGNIFICANT TREND OBSERVED
- OFF-SITE GROUNDWATER ORDINANCE EXTENT
- CURRENT OR FORMER RACER PROPERTY

NOTES:

1. MANN-KENDALL TREND ANALYSIS CONDUCTED WHEN AT LEAST SEVEN SAMPLES, 50% DETECTED VALUES, AND AT LEAST ONE CRITERIA EXCEEDANCE ARE AVAILABLE. SIGNIFICANCE OF TRENDS EVALUATED AT 95% CONFIDENCE.

2. TREND RESULTS SUMMARIZED IN APPENDIX D.

ABBREVIATIONS:

FE IRON
MN MANGANESE
TDS TOTAL DISSOLVED SOLIDS

0 700 1,400

SCALE IN FEET

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SUMMARY OF
STATISTICAL TRENDS IN
GROUNDWATER - 2024

FIGURE
8

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 where 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 Modification 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!

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

Appendix B

2018 GMP Request and USEPA Approval

MEMO

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.

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
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.

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
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.

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
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

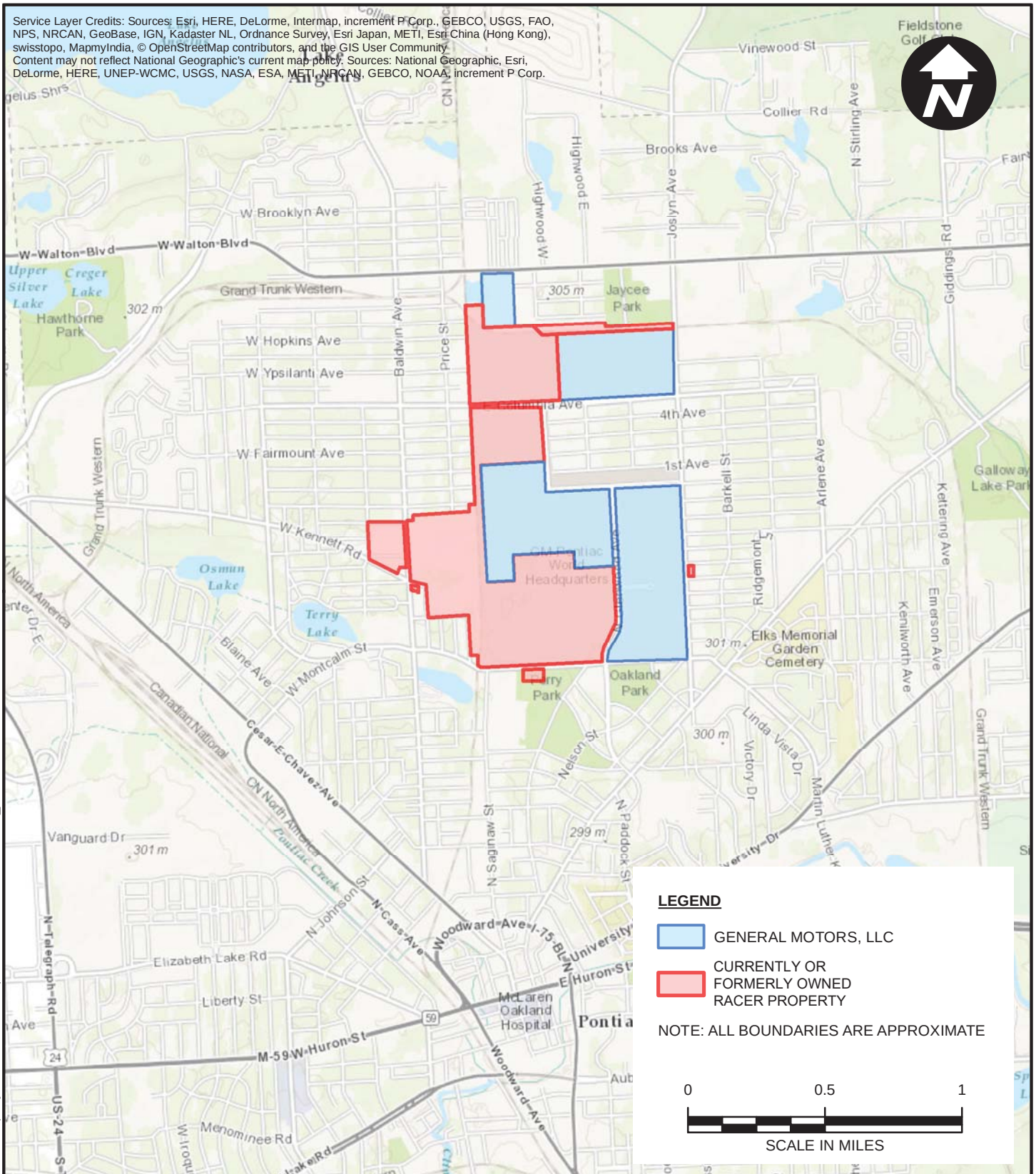
Footnotes:

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

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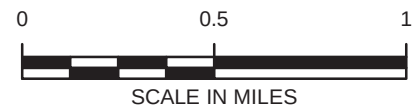


LEGEND

GENERAL MOTORS, LLC

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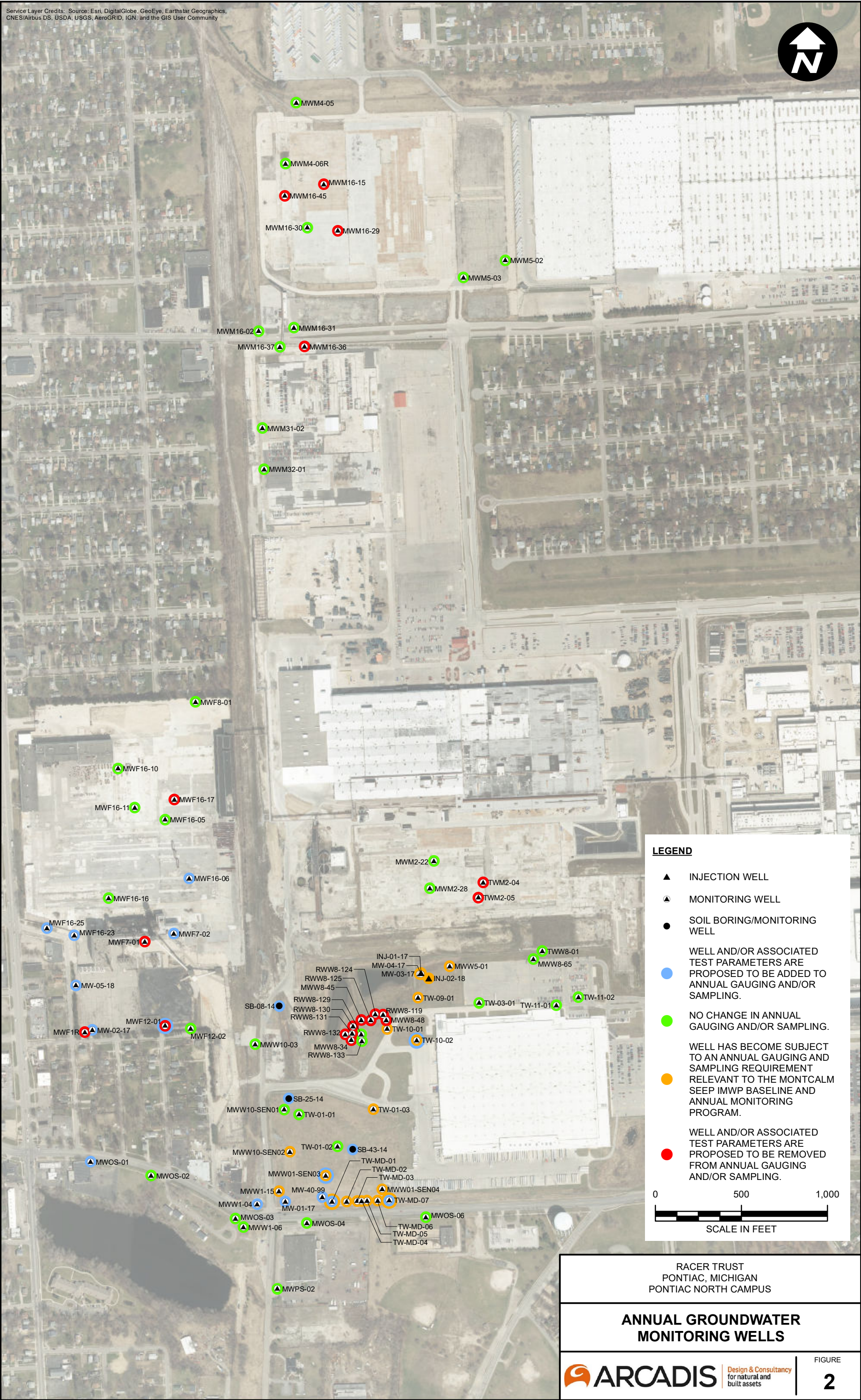


RACER TRUST
 PONTIAC NORTH CAMPUS
 PONTIAC, MICHIGAN

SITE LOCATION



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\Motors\Liquidation\Company\Pontiac\NorthCampus\Annual GW Monitoring\Wells 2018.mxd PLOTTED: 8/23/2018 11:35:58 AM BY: TYarbrough



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**

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
REMEDATION AND REUSE BRANCH,
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(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
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Professional Engineer / PE-MI, 6201050540



Be green, leave it on the screen.

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Appendix C

2024 GMP Request and USEPA Approval

Nickerson, Lexi

From: Stanhope, Jennifer (she/her/hers) <Stanhope.Jennifer@epa.gov>
Sent: Wednesday, October 30, 2024 11:08 AM
To: Brendan Mullen; dfavero@racertrust.org
Cc: Linder, Tiffany
Subject: MID005356886 EPA Response - Proposed 2024 Groundwater Monitoring - RACER PNC

Arcadis Warning: Exercise caution with email messages from external sources such as this message. Always verify the sender and avoid clicking on links or scanning QR codes unless certain of their authenticity.

Dave and Brendan,

The U.S. Environmental Protection Agency (EPA) reviewed the October 29, 2024 email prepared by Arcadis of Michigan, LLC (Arcadis) in response to the EPA's October 23, 2024 comments on the October 3, 2024 *DRAFT – Groundwater Monitoring Plan* (GMP). The GMP was submitted by Arcadis on behalf of the RACER Trust for the Pontiac North Campus in Pontiac, Michigan. The EPA has no objection to RACER proceeding with the following actions proposed in the October 29, 2024 email:

- RACER will implement the Revised GMP in 2024 including sampling the additional locations requested by the EPA in the October 23, 2024 email. Before conducting the sampling, please provide a list of the analyses that will be conducted on the quality assurance / quality control samples as requested in the EPA's Comment 1. Please ensure that the trip blank samples referenced in the EPA's Comment 2 are included in the sampling program.
- RACER will revise the GMP document after reviewing the 2024 groundwater sampling results.
- RACER will sample the Fiero Parking Lot piezometers as a one-time sampling event as requested by the EPA.

The EPA notes the response to Comment 11 states the second quarter 2024 PFAS sampling results were shared with the EPA during the September 12, 2024 monthly meeting, and would appreciate RACER/Arcadis providing the slides from the meeting so the EPA can reference the data.

The EPA defers our response to the August 29, 2024 Draft Memo from Arcadis for the RACER Trust Pontiac North Campus with the subject, "DRAFT 2024 Monitoring Well Improvement and Abandonment Proposal" (Draft Memo) until a revised GMP is approved. The EPA has no objection to RACER proceeding with the well improvements proposed in the Draft Memo.

Please let me know if you have any questions.

Sincerely,

Jennifer Stanhope, P.E.
Corrective Action Project Manager
U.S. EPA Region 5
77 W. Jackson Blvd. (LR-16J)
Chicago, Illinois 60604
(312) 886-0681

From: Linder, Tiffany <Tiffany.Linder@arcadis.com>
Sent: Tuesday, October 29, 2024 10:02 AM
To: Stanhope, Jennifer (she/her/hers) <Stanhope.Jennifer@epa.gov>; dfavero@racertrust.org; Brendan Mullen

<bmulen@racertrust.org>

Cc: Curry, Patrick <Patrick.Curry@arcadis.com>

Subject: RE: MID005356886 EPA Comments on Draft Groundwater Monitoring Plan - RACER PNC

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello Jennifer,

We appreciate your quick review of the Revised GMP so it can be implemented this year. Please see our responses below in blue text to your comments and would again appreciate your quick review of the responses as we hope to begin sampling on November 4th.

We propose to implement the Revised GMP in 2024 and will include the additional sampling you have suggested below in your comments. However, we would like the opportunity to review the analytical results from the 2024 annual event -



including the locations and analyses you have requested - before revising the GMP document. We think it would be beneficial to review that data with you and then provide a revised draft of the GMP in preparation for the 2025 event. Additionally, we will proceed with sampling of the Fiero Parking Lot piezometers (as referenced in Comment #12) as a one-time sampling event to evaluate current groundwater conditions and then evaluate that data and review with you to determine if any additional sampling is necessary for those piezometers.

Tiffany A. Linder

Certified Project Manager | Arcadis of Michigan, LLC

I work flexibly. If you are receiving this message outside of your normal working hours, I do not expect you to take action or respond. Thank you!

From: Stanhope, Jennifer (she/her/hers) <Stanhope.Jennifer@epa.gov>

Sent: Wednesday, October 23, 2024 10:25 AM

To: dfavero@racertrust.org; Brendan Mullen <bmulen@racertrust.org>

Cc: Linder, Tiffany <Tiffany.Linder@arcadis.com>

Subject: MID005356886 EPA Comments on Draft Groundwater Monitoring Plan - RACER PNC

Arcadis Warning: Exercise caution with email messages from external sources such as this message. Always verify the sender and avoid clicking on links or scanning QR codes unless certain of their authenticity.

Dave and Brendan,

The U.S. Environmental Protection Agency (EPA) reviewed the October 3, 2024 *DRAFT – Groundwater Monitoring Plan* (GMP), which was submitted by Arcadis of Michigan, LLC on behalf of the RACER Trust for the Pontiac North Campus in Pontiac, Michigan. The EPA provides the following comments on the GMP:

1. Section 4.2 specifies that the equipment blank samples will be analyzed for PFAS. Please specify the analyses that will be conducted for the other quality assurance / quality control (QA/QC) samples.
2. Please include trip blank samples for volatile organic compound (VOC) analysis in the QA/QC sample collection.

3. In the Section 5 list of items to be included in the Annual Reports, please list the historical groundwater analytical results table. Please compile the historic data for each well in the Annual Reports so the trends can be easily observed.
4. Please add the wells included in the 2018 groundwater monitoring plan to Figures 2 and 3 for reference.
5. Figure 3 indicates MWOS-02 will be sampled for PFAS, but Table 2 does not. Please correct Table 2.
6. Table 2 indicates that MWF12-01R is part of the Fiero TMP, but Figure 3 does not. Please correct Figure 3.
7. Please add the data for MWW10-03, MWW10-SEN02, and MWM2-37 to Figure 3A in Appendix B to support the elimination of sampling for volatile organic compounds (VOCs) at these locations and the data for MWW10-SEN02 to Figure 3C to support the elimination of sampling for PCBs at this location.
8. Please correct the note for monitoring wells MWM2-22 and MWM2-28 on Figure 3A in Appendix B.
9. Please check the notes that are referenced for well MWF12-02 on Figures 3B and 4 in Appendix B. The notes on the two figures provide different information.

Comments 1-9 will be addressed in the Revised GMP to be re-submitted for EPA review following evaluation of data collected in 2024.

10. Please add the following wells and analytes to the proposed plan:

- a. PFAS at:
 - i. MWOS-05 to monitor the extent downgradient of MWW1-02.
 - ii. MWM30-01 for perimeter monitoring of potential groundwater impacts migrating off-site.
 - iii. MW-03-17 since this area has consistently had the highest concentrations on-site and concentrations could migrate toward the Montcalm Seep.

This additional sampling requested will be implemented during the 2024 Annual Event.

- b. Inorganics at:
 - i. MWOS-01, MWOS-02, and MWOS-05 to monitor off-site manganese concentrations and confirm no risk to off-site receptors.
 - ii. MWF12-02R to monitor the manganese concentration at the property line.
 - iii. Table 2 and Appendix A Figure 1 indicate the concentrations are stable or decreasing at MWW01-SEN03, and Table A-1 in Appendix A indicates there is no significant trend based on the coefficient of variation for the three analytes evaluated at this location (i.e., copper, manganese, and 1,4-dioxane). However, the data presented in Figure 3B of Appendix B shows a steady increase in the concentrations of iron, manganese, and total dissolved solids (TDS) at this location from 2020 through 2023. Since these changes could impact the Montcalm Seep, please add sampling for inorganics at MWW01-SEN03.

This additional sampling requested will be implemented during the 2024 Annual Event.

- c. 1,4-Dioxane at:
 - i. TW-10-02 to monitor interior concentrations and ensure increased concentrations are not migrating toward the property line.
 - ii. MWF12-01R and MWF7-02 since it doesn't appear that 1,4-dioxane is included in the Fiero Temporary Monitoring Plan list of VOCs.

This additional sampling requested will be implemented during the 2024 Annual Event.

- d. VOCs at:
 - i. MWM2-22 to monitor whether the concentrations remain below the nonresidential volatilization to indoor air pathway screening levels and MWM2-28 to confirm the VOCs are not migrating to the south.
 - ii. MWM16-30, MWM16-02, and MWM16-37 to determine whether on-site concentrations are decreasing and to monitor whether contaminants are migrating off-site.

This additional sampling requested will be implemented during the 2024 Annual Event.

- e. PCBs at:
 - i. MW-OS-05 to confirm the extent is limited to the area around TW-MD-06.
 - ii. If LNAPL is not present in TW-MD-06, please sample the well for PCBs.

This additional sampling requested will be implemented during the 2024 Annual Event except for TW-MD-06. As LNAPL has previously been observed in that well, LNAPL may have left a coating on or stained the screen/casing and therefore analytical results from a sample may not be representative of the groundwater quality.

- 11. The 2024 sampling results for PFAS were not available to the EPA at the time of this review, and the EPA's comments on the proposed sampling locations for PFAS in the GMP are based on limited data collected in 2023. Changes to the PFAS sampling network may be needed as additional data is collected and used to refine the magnitude and extent of PFAS impact.

Acknowledged. The results of the 2Q 2024 PFAS sampling results were shared with EPA during the September 12, 2024, monthly meeting. The results of the 2Q and 4Q PFAS sampling events will be summarized in the annual report and submitted to the EPA in first quarter 2025.

- 12. The data included in the Technical Memo with the subject, "Determination for Property Not Being Regulated Under RCRA, including Corrective Action, and Not Being Covered Under Administrative Order on Consent RCRA-05-2011-00019" (Memo) indicate the following analytes have been detected in soil samples collected on the former Fiero Parking Lot property at concentrations above the Michigan Department of Environment, Great Lakes, and Energy (EGLE) screening criteria for protection of groundwater:

- Carbon tetrachloride and tetrachloroethene at BF17-15, and
- Metals at locations throughout the Property.

The groundwater data provided in the Memo indicate one groundwater sample was collected for volatile organic compound analysis at PZF17-02 and it doesn't appear that groundwater samples have been collected for metals analysis.

Before removing the wells on the former Fiero Parking Lot parcels from the GMP and proceeding with a remedy determination in this area, the EPA requests that RACER conduct the following additional groundwater sampling to confirm contaminants are not present in groundwater above the EGLE screening criteria:

- a. Sample PZF17-05 for carbon tetrachloride and tetrachloroethene, and
- b. Sample the five piezometers at the property for metals.

As stated in comment 12 above, this relates to the Technical Memo with the subject, "Determination for Property Not Being Regulated Under RCRA, including Corrective Action, and Not Being Covered Under Administrative Order on Consent RCRA-05-2011-00019" (Memo) and we do not consider this as part of the Revised GMP Submittal. However, this additional sampling will be completed as a one-time event to evaluate the current groundwater conditions at the Fiero Parking Lot Property. The data from the Fiero Parking Lot groundwater samples will be evaluated to determine if any additional sampling is necessary and as part of the above referenced memo.

Please let me know if you have any questions. I would be happy to discuss the sampling network and any alternate wells RACER would like to propose for sampling to meet the objectives outlined in Comment 10.

Sincerely,

Jennifer Stanhope, P.E.
Corrective Action Project Manager
U.S. EPA Region 5
77 W. Jackson Blvd. (LR-16J)
Chicago, Illinois 60604
(312) 886-0681

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Appendix D

Groundwater Sampling Logs

Groundwater Sampling Form



Project Number	30214041	Well ID	MW-01-17	Date	11/7/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	52.0 degrees F and Mostly Clear. The wind is blowing NW at 5.8 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	7.92	Total Depth (ft-bmp)	10.75	Water Column (ft)	2.83	Gallons in Well	0.46
Purge Start	11:48	Pump Intake (ft-bmp)	8.5	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	12:32	Volumes Purged	2.50	Sample ID	MW-01-17_GW-110724	Sampled by	Garrett Link
Sample Time	12:20	Gallons Purged	1.15	Replicate/Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:49	0	0	145	7.99	0.00	7.78	2.73	23.4	0.94	16	-175.7	Clear	None
11:54	5	5	145	7.99	0.19	7.81	2.723	14.9	0.4	16.2	-190.5	Clear	None
11:59	5	10	145	8.00	0.38	7.88	2.714	8.11	0.25	16	-209.7	Clear	None
12:04	5	15	145	8.00	0.57	7.91	2.701	4.57	0.25	16.1	-219	Clear	None
12:09	5	20	145	8.00	0.77	7.92	2.704	4.51	0.23	16.2	-221.3	Clear	None
12:14	5	25	145	8.00	0.96	7.94	2.695	2.06	0.15	16.3	-222.9	Clear	None
12:19	5	30	145	8.00	1.15	7.94	2.7	1.26	0.13	16.3	-226.3	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
PFAS	250mL HDPE Plastic	2	None
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments: Per Arcadis TGI, DO is stable with three readings below 0.5 mg/L and turbidity with three readings below 5 ntu.

Well Casing Volume Conversion

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

Well Information

Well Location: USPS property SW	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MW-03-17	Date	11/6/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	64.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	10.13	Total Depth (ft-bmp)	21.89	Water Column (ft)	11.76	Gallons in Well	1.91
Purge Start	15:57	Pump Intake (ft-bmp)	19.5	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	16:54	Volumes Purged	0.66	Sample ID	MW-03-17_110624	Sampled by	Alaina Ralko
Sample Time	16:45	Gallons Purged	1.27	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:01	0	0	120	10.14	0.00	7.13	1.91	1.91	4.8	15.2	21.3	Clear	None
16:06	5	5	120	10.16	0.16	7.22	1.86	1.94	1.54	15.2	-18.8	Clear	None
16:11	5	10	120	10.16	0.32	7.24	1.9	1.84	1.86	15.3	-45	Clear	None
16:16	5	15	120	10.17	0.48	7.26	2	1.76	1.23	15.4	-46.1	Clear	None
16:21	5	20	120	10.17	0.63	7.27	2.21	1.08	0.25	14.9	-107.6	Clear	None
16:26	5	25	120	10.16	0.79	7.27	2.23	1.08	0.18	14.9	-108.6	Clear	None
16:31	5	30	120	10.21	0.95	7.28	2.23	1.13	0.23	14.8	-108.9	Clear	None
16:36	5	35	120	10.20	1.11	7.27	2.24	1.09	0.24	14.8	-108.6	Clear	None
16:41	5	40	120	10.20	1.27	7.28	2.25	1.1	0.25	14.8	-107.8	Clear	None

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

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: USPS	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWF12-01R	Date	11/7/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	52.0 degrees F and Clear. The wind is blowing W at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	20.49	Total Depth (ft-bmp)	23.22	Water Column (ft)	2.73	Gallons in Well	0.44
Purge Start	12:08	Pump Intake (ft-bmp)	22.1	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	12:52	Volumes Purged	2.16	Sample ID	MWF12-01R_GW-110724	Sampled by	Alaina Ralko
Sample Time	12:45	Gallons Purged	0.95	Replicate/ Code No.	DUP-01_110724	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:10	0	0	120	20.50	0.00	7.09	1.56	12.3	0.86	16.9	28.2	Clear	None
12:15	5	5	120	20.49	0.16	7.01	1.83	11.9	0.38	16.6	28.6	Clear	None
12:15	5	5	120	20.49	0.16	6.97	1.92	10.1	1.05	15.9	30.5	Clear	None
12:20	5	10	120	20.49	0.32	6.95	1.92	5.18	1.32	16.6	31.6	Clear	None
12:25	5	15	120	20.50	0.48	6.92	1.92	3.12	1.16	16.2	33.4	Clear	None
12:30	5	20	120	20.49	0.63	6.92	1.94	1.4	1.21	16	31	Clear	None
12:35	5	25	120	20.49	0.79	6.92	1.94	1.43	1.23	16.4	31	Clear	None
12:40	5	30	120	20.49	0.95	6.92	1.94	1.35	1.234	16.1	30	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Fiero	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWF12-02R	Date	11/7/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	52.0 degrees F and Clear. The wind is blowing W at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	13.76	Total Depth (ft-bmp)	22.48	Water Column (ft)	8.72	Gallons in Well	1.42
Purge Start	10:21	Pump Intake (ft-bmp)	20	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	11:20	Volumes Purged	1.00	Sample ID	MWF12-02R_GW-110724	Sampled by	Alaina Ralko
Sample Time	11:10	Gallons Purged	1.43	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:23	0	0	120	13.75	0.00	7.04	0.87	25.7	3.41	14.6	18	Clear	None
10:28	5	5	120	13.75	0.16	7.06	0.88	22.4	3.14	14.4	14.2	Clear	None
10:33	5	10	120	13.76	0.32	6.61	0.88	12.7	2.29	14.4	22.7	Clear	None
10:38	5	15	120	13.76	0.48	7.09	1.17	11.7	0.25	14.4	26.5	Clear	None
10:43	5	20	120	13.76	0.63	7.12	1.17	10.9	0.21	14.4	26.2	Clear	None
10:48	5	25	120	13.75	0.79	7.12	1.17	10.5	0.2	14.3	25.4	Clear	None
10:53	5	30	120	13.74	0.95	7.14	1.17	9	0.2	14.3	24.4	Clear	None
10:58	5	35	120	13.74	1.11	7.11	1.17	7.98	0.13	14.3	25.7	Clear	None
11:03	5	40	120	13.75	1.27	7.11	1.18	7.98	0.22	14.2	26.2	Clear	None
11:08	5	45	120	13.75	1.43	7.12	1.18	8.36	0.22	14.3	26.2	Clear	None

Constituent Sampled	Container	Number	Preservative
Specific Inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250 mL Plastic	1	None
PFAS	250mL HDPE Plastic	2	None
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Fiero	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWF16-25	Date	11/6/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	61.5 degrees F and Cloudy. The wind is blowing W/SW at 12.8 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	26.12	Total Depth (ft-bmp)	32.2	Water Column (ft)	6.08	Gallons in Well	0.99
Purge Start	12:19	Pump Intake (ft-bmp)	29.6	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	13:00	Volumes Purged	0.96	Sample ID	MWF16-25_110624	Sampled by	Alaina Ralko
Sample Time	12:55	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:21	0	0	120	26.12	0.00	6.53	0.61	31.4	3.34	17.5	47.8	Clear	None
12:26	5	5	120	26.13	0.16	7.01	0.6	31.4	3.61	17.4	39.4	Clear	None
12:31	5	10	120	26.12	0.32	7.12	0.6	24.8	5.99	17.3	39.1	Clear	None
12:36	5	15	120	26.14	0.48	7.11	0.59	3.76	5.56	17.2	36.4	Clear	None
12:41	5	20	120	26.13	0.63	7.25	0.591	3.25	5.16	17.8	89.5	Clear	None
12:46	5	25	120	26.13	0.79	7.23	0.59	3.87	5.17	17.4	89.6	Clear	None
12:51	5	30	120	26.13	0.95	7.24	0.592	3.23	5.69	17.9	89.6	Clear	None

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

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Fiero	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

ft-bmp = feet below measuring point

in = inches

ft = feet

mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter

NTU = Nephelometric Turbidity Unit

mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWF16-26	Date	11/6/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	64.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	24.59	Total Depth (ft-bmp)	35.84	Water Column (ft)	11.25	Gallons in Well	1.83
Purge Start	14:02	Pump Intake (ft-bmp)	27.1	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	14:42	Volumes Purged	0.52	Sample ID	MWF16-26_110624	Sampled by	Alaina Ralko
Sample Time	14:35	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:04	0	0	120	24.59	0.00	6.58	0.61	7.23	7.09	15.1	66.5	Clear	None
14:09	5	5	120	24.61	0.16	7.11	0.62	6.98	7.11	14.8	69.6	Clear	None
14:14	5	10	120	24.61	0.32	7.14	0.62	4.32	5.32	14.8	61.6	Clear	None
14:19	5	15	120	24.61	0.48	7.16	0.63	4.12	5.72	14.9	61.4	Clear	None
14:24	5	20	120	24.59	0.63	7.18	0.74	1.18	2.09	15.1	71.4	Clear	None
14:29	5	25	120	24.60	0.79	7.15	0.76	1.12	2.08	15	71.3	Clear	None
14:34	5	30	120	24.59	0.95	7.16	0.75	1.09	2.09	15	71.8	Clear	None

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

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Fiero	Well Locked at Arrival: yes
Condition of Well: Missing bolts	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

ft-bmp = feet below measuring point

in = inches

ft = feet

mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter

NTU = Nephelometric Turbidity Unit

mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWF7-02	Date	11/5/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	69.1 degrees F and Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	19.20	Total Depth (ft-bmp)	19.72	Water Column (ft)	0.52	Gallons in Well	0.08
Purge Start	11:03	Pump Intake (ft-bmp)	19.45	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	11:55	Volumes Purged	13.87	Sample ID	MWF7-02_GW-110524	Sampled by	Alaina Ralko
Sample Time	11:45	Gallons Purged	1.11	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:05	0	0	120	19.29	0.00	7.14	0.78	13.4	3.96	17.7	66.8	Clear	None
11:10	5	5	120	19.42	0.16	7.2	0.78	8.83	4.43	17.6	65.2	Clear	None
11:15	5	10	120	19.44	0.32	7.22	0.81	6.78	3.89	17.5	63.4	Clear	None
11:20	5	15	120	19.43	0.48	7.22	0.81	7.31	3.77	17.4	62.5	Clear	None
11:25	5	20	120	19.52	0.63	7.23	0.81	7.02	3.7	17.4	61.9	Clear	None
11:30	5	25	120	19.54	0.79	7.3	0.82	6.67	3.49	17.4	63.9	Clear	None
11:35	5	30	120	19.53	0.95	7.24	0.82	6.69	3.52	17.6	63.8	Clear	None
11:40	5	35	120	19.52	1.11	7.24	0.82	6.32	3.57	17.7	63.3	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Fiero	Well Locked at Arrival: yes
Condition of Well: Missing bolts	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWM16-02	Date	11/12/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	37.9 degrees F and Mostly Cloudy. The wind is blowing N/NE at 10.3 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	22.38	Total Depth (ft-bmp)	28.65	Water Column (ft)	6.27	Gallons in Well	1.02
Purge Start	10:21	Pump Intake (ft-bmp)	26.1	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	10:59	Volumes Purged	0.93	Sample ID	MWM16-02_GW-111224	Sampled by	Alaina Ralko
Sample Time	10:55	Gallons Purged	0.95	Replicate/ Code No.	DUP-05	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:23	0	0	120	22.39	0.00	7.24	1.02	3.13	5.77	13	27.7	Clear	None
10:28	5	5	120	22.39	0.16	7.24	1.02	2.36	0.67	13	26.9	Clear	None
10:33	5	10	120	22.38	0.32	7.14	1.02	2.02	4.85	13.2	27.7	Clear	None
10:38	5	15	120	22.39	0.48	7.13	1.02	2.02	1.37	13.2	29.7	Clear	None
10:43	5	20	120	22.38	0.63	7.13	1.06	2.13	2.42	12.5	27.7	Clear	None
10:48	5	25	120	22.38	0.79	7.12	1.06	2.06	2.31	12.6	27.7	Clear	None
10:53	5	30	120	22.40	0.95	7.13	1.06	2.12	2.21	12.6	27.5	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: NMFD	Well Locked at Arrival: yes
Condition of Well: Missing bolts	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number 30214041 Well ID MWM16-37 Date 11/12/2024

Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	46.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	22.98	Total Depth (ft-bmp)	35.25	Water Column (ft)	12.27	Gallons in Well	1.99
Purge Start	11:24	Pump Intake (ft-bmp)	33	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	12:05	Volumes Purged	0.48	Sample ID	MWM16-37_GW-111224	Sampled by	Alaina Ralko
Sample Time	12:00	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
11:26	0	0	120	22.98	0.00	7.32	1.52	9.98	2.04	13.5	42.4	Clear	None
11:31	5	5	120	22.98	0.16	7.26	1.58	6.17	1.5	13.2	42.6	Clear	None
11:36	5	10	120	22.98	0.32	7.23	1.59	5.98	1.31	12.9	41.7	Clear	None
11:41	5	15	120	22.99	0.48	7.22	1.59	5.67	2.53	12.9	40.7	Clear	None
11:46	5	20	120	22.99	0.63	7.31	0.88	4.56	3.14	12.8	8.2	Clear	None
11:51	5	25	120	22.98	0.79	7.31	0.88	3.97	3.38	12.8	8.1	Clear	None
11:56	5	30	120	22.98	0.95	7.32	0.87	3.97	3.37	12.8	8.1	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: NMFD	Well Locked at Arrival: yes
Condition of Well: Missing bolts	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWM2-22	Date	11/5/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	69.1 degrees F and Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	18.01	Total Depth (ft-bmp)	24.33	Water Column (ft)	6.32	Gallons in Well	1.03
Purge Start	15:33	Pump Intake (ft-bmp)	20.5	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	16:14	Volumes Purged	0.92	Sample ID	MWM2-22_GW-110524	Sampled by	Alaina Ralko
Sample Time	16:10	Gallons Purged	0.95	Replicate/ Code No.	Same as parent.	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:35	0	0	120	18.00	0.00	6.28	0.8	2.26	0.43	19.8	-58.8	Clear	None
15:40	5	5	120	18.00	0.16	7.14	0.81	2.14	0.39	19.8	-95.3	Clear	None
15:45	5	10	120	18.00	0.32	7.21	0.82	1.32	0.6	19.8	-80.3	Clear	None
15:50	5	15	120	18.00	0.48	7.11	0.85	0.45	0.3	19.7	-97.9	Clear	None
15:55	5	20	120	17.98	0.63	6.85	0.95	0.02	0.25	19.7	-75.4	Clear	None
16:00	5	25	120	17.96	0.79	6.95	0.95	0.02	0.25	19.7	-77.5	Clear	None
16:05	5	30	120	17.96	0.95	6.95	0.95	0.02	0.23	19.6	-77.7	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260C	40 mL Glass	9	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: SMFD	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWM2-28	Date	11/5/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	69.1 degrees F and Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	17.92	Total Depth (ft-bmp)	25.8	Water Column (ft)	7.88	Gallons in Well	1.28
Purge Start	14:21	Pump Intake (ft-bmp)	19.4	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	15:09	Volumes Purged	0.74	Sample ID	MWM2-28_GW-110524	Sampled by	Alaina Ralko
Sample Time	15:00	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:25	0	0	120	17.92	0.00	5.43	0.9	6.06	3.06	18.9	108.4	Clear	None
14:30	5	5	120	17.91	0.16	5.17	0.82	6.12	1.26	19.1	72.3	Clear	None
14:35	5	10	120	17.93	0.32	5.36	0.83	6.45	1	19.1	52.1	Clear	None
14:40	5	15	120	17.99	0.48	6.36	0.83	4.04	0.73	19.1	9.7	Clear	None
14:45	5	20	120	17.98	0.63	7.21	0.81	1.08	0.21	18.8	-81.2	Clear	None
14:50	5	25	120	18.10	0.79	7.24	0.81	0.97	0.19	18.8	-81.9	Clear	None
14:55	5	30	120	18.10	0.95	7.25	0.81	0.99	0.19	18.8	-82.8	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: SMFD	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWM30-01	Date	11/8/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	48.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	23.46	Total Depth (ft-bmp)	34.61	Water Column (ft)	11.15	Gallons in Well	1.81
Purge Start	10:02	Pump Intake (ft-bmp)	32	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	11:51	Volumes Purged	1.44	Sample ID	MWM30-01_GW-110824	Sampled by	Garrett Link
Sample Time	11:05	Gallons Purged	2.62	Replicate/Code No.	DUP-02_110824	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:05	0	0	165	23.46	0.00	6.93	1.08	20.8	0.7	14.8	-13.8	Clear	None
10:10	5	5	165	23.47	0.22	6.96	1.069	6.98	0.35	14.6	-50.4	Clear	None
10:15	5	10	165	23.47	0.44	6.97	1.052	6.67	0.24	14.6	-61.1	Clear	None
10:20	5	15	165	23.47	0.65	6.97	1.047	5.85	0.19	14.7	-66	Clear	None
10:25	5	20	165	23.47	0.87	6.97	1.046	8.71	0.17	14.8	-69.9	Clear	None
10:30	5	25	165	23.47	1.09	6.96	1.035	8.81	0.16	14.7	-70.5	Clear	None
10:35	5	30	165	23.47	1.31	6.97	1.044	6.81	0.17	15.2	-71.2	Clear	None
10:40	5	35	165	23.47	1.53	6.96	1.045	4.11	0.19	15.2	-71.4	Clear	None
10:45	5	40	165	23.47	1.74	6.96	1.047	5.18	0.19	15.1	-71.3	Clear	None
10:50	5	45	165	23.47	1.96	6.96	1.041	5.72	0.2	15.4	-71.5	Clear	None
10:55	5	50	165	23.47	2.18	6.95	1.044	4.56	0.19	15.2	-71.6	Clear	None
11:00	5	55	165	23.47	2.40	6.96	1.043	6.65	0.19	15	-71.7	Clear	None
11:05	5	60	165	23.47	2.62	6.95	1.04	3.74	0.19	15	-71.5	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: U-pull lot south.	Well Locked at Arrival: no
Condition of Well: Missing lock,Missing bolts,Needs repairs	Well Locked at Departure: no
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number 30214041 Well ID MWM32-09 Date 11/12/2024

Project Name/Location	RACER Pontiac North Campus 2024			Weather(°F)	43.0 degrees F and Mostly Cloudy.		
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	23.48	Total Depth (ft-bmp)	25.83	Water Column (ft)	2.35	Gallons in Well	0.38
Purge Start	12:32	Pump Intake (ft-bmp)	24	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	13:11	Volumes Purged	2.50	Sample ID	MWM32-09_GW-111224	Sampled by	Alaina Ralko
Sample Time	13:05	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:32	0	0	120	23.48	0.00	7.16	0.74	6.57	4.7	14.3	-29.5	Clear	None
12:37	5	5	120	23.48	0.16	7.1	0.74	6.23	4.5	13.8	-27	Clear	None
12:42	5	10	120	23.48	0.32	7.1	0.73	1.09	4.67	13.6	-24.3	Clear	None
12:47	5	15	120	23.48	0.48	7.09	0.73	0.02	6.24	13.7	-21.8	Clear	None
12:52	5	20	120	23.48	0.63	7.09	0.76	0.02	4.63	15	3.7	Clear	None
12:57	5	25	120	23.48	0.79	7.09	0.77	0.02	4.64	15	3.7	Clear	None
13:02	5	30	120	23.48	0.95	7.09	0.78	0.02	4.63	15.1	3.8	Clear	None

Constituent Sampled	Container	Number	Preservative
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: NMFD Well Locked at Arrival: yes
Condition of Well: Missing lock Well Locked at Departure: yes
Well Completion: Stick-up Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWOS-01	Date	11/5/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	69.1 degrees F and Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	7.42	Total Depth (ft-bmp)	13.55	Water Column (ft)	6.13	Gallons in Well	1.00
Purge Start	13:05	Pump Intake (ft-bmp)	10	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	13:54	Volumes Purged	0.95	Sample ID	MWOS-01_GW-110524	Sampled by	Alaina Ralko
Sample Time	13:45	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:10	0	0	120	7.42	0.00	4.08	1.88		1.03	17.1	-178.6	Clear	None
13:15	5	5	120	7.42	0.16	5.11	1.89	55.1	1.03	17.1	-178.9	Clear	None
13:20	5	10	120	7.42	0.32	5.28	1.91	45.9	0.39	17	-105.9	Clear	None
13:25	5	15	120	7.42	0.48	5.5	1.91	47.8	0.36	17	-90.9	Clear	None
13:30	5	20	120	7.41	0.63	6.98	1.91	44.3	0.22	17.1	-78.9	Clear	None
13:30	5	20	120	7.45	0.63	7.19	1.94	0.51	0.17	17.1	-39.2	Clear	None
13:35	5	25	120	7.45	0.79	7.21	1.94	0.49	0.17	17.1	-40.4	Clear	None
13:40	5	30	120	7.45	0.95	7.21	1.94	0.51	0.18	17.1	-40.9	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250 mL Plastic	1	None
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Offsite	Well Locked at Arrival: yes
Condition of Well: Missing bolts	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

ft-bmp = feet below measuring point

in = inches

ft = feet

mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter

NTU = Nephelometric Turbidity Unit

mg/L = milligrams per liter

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWOS-02	Date	11/8/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	55.9 degrees F and Mostly Clear. The wind is blowing NW at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	7.05	Total Depth (ft-bmp)	15.89	Water Column (ft)	8.84	Gallons in Well	1.44
Purge Start	14:06	Pump Intake (ft-bmp)	13.5	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	14:54	Volumes Purged	1.07	Sample ID	MWOS-02_GW-110824	Sampled by	Garrett Link
Sample Time	14:40	Gallons Purged	1.55	Replicate/Code No.	MWOS-02_GW-110824	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:08	0	0	195	7.06	0.00	7.16	2.372	14.2	0.68	15.7	-70.5	Clear	None
14:13	5	5	195	7.06	0.26	7.07	2.364	11.9	0.23	15.8	-72.8	Clear	None
14:18	5	10	195	7.06	0.52	7.07	2.324	13.6	0.81	15.7	-62.4	Clear	None
14:23	5	15	195	7.06	0.77	7.07	2.309	5.96	0.72	15.7	-58.2	Clear	None
14:28	5	20	195	7.06	1.03	7.06	2.334	6.19	0.15	15.7	-56	Clear	None
14:33	5	25	195	7.06	1.29	7.06	2.299	5.59	0.15	15.7	-53.9	Clear	None
14:38	5	30	195	7.06	1.55	7.06	2.286	6.15	0.15	15.6	-51.9	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None
Total Dissolved Solids	250mL HDPE Plastic	1	None
VOCs	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: South ROW of Montcalm St.	Well Locked at Arrival: yes
Condition of Well: Missing bolts	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number 30214041 Well ID MWOS-04 Date 11/7/2024

Project Name/Location	RACER Pontiac North Campus 2024			Weather(°F)	62.1 degrees F and Cloudy. The wind is blowing W at 9.2 mph.		
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	4.38	Total Depth (ft-bmp)	12.9	Water Column (ft)	8.52	Gallons in Well	1.38
Purge Start	15:37	Pump Intake (ft-bmp)	10.4	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	16:30	Volumes Purged	0.80	Sample ID	MWOS-04_GW-110724	Sampled by	Alaina Ralko
Sample Time	16:20	Gallons Purged	1.11	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:39	0	0	120	4.39	0.00	6.79	2.58	66.3	1.14	16.2	-56.2	Clear	None
15:44	5	5	120	4.38	0.16	6.8	2.58	34.2	0.74	16.1	-57.1	Clear	None
15:49	5	10	120	4.38	0.32	6.81	2.58	34.2	0.62	16.1	-57.4	Clear	None
15:54	5	15	120	4.39	0.48	6.81	2.58	34.2	0.57	16.1	-57.7	Clear	None
15:59	5	20	120	4.39	0.63	6.86	2.52	9.76	0.52	16.3	-60.8	Clear	None
16:04	5	25	120	4.41	0.79	6.86	2.53	4.34	0.52	16.3	-60.8	Clear	None
16:09	5	30	120	4.41	0.95	6.86	2.53	4.34	0.52	16.4	-61	Clear	None
16:14	5	35	120	4.41	1.11	6.86	2.52	4.37	0.54	16.3	-61.3	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250 mL Plastic	1	None
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Offsite
Condition of Well: Good condition
Well Completion: Flush mount
Well Locked at Arrival: yes
Well Locked at Departure: yes
Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number 30214041 Well ID MWOS-05 Date 11/8/2024

Project Name/Location RACER Pontiac North Campus 2024 Weather(°F) 55.9 degrees F and Mostly Clear. The wind is blowing N/NW at 12.8 mph.

Measuring Pt. Description Top of Inner Casing MP Elevation NM Casing Diameter (in) 2 Well Casing Material PVC

Static Water Level (ft-bmp) 4.00 Total Depth (ft-bmp) 11.5 Water Column (ft) 7.50 Gallons in Well 1.22

Purge Start 14:16 Pump Intake (ft-bmp) 9 Purge Method Low-Flow Purge Equipment Peristaltic

Purge End 15:33 Volumes Purged 1.01 Sample ID MWOS-05_GW-110824 Sampled by Alaina Ralko

Sample Time 15:00 Gallons Purged 1.24 Replicate/ Code No. DUP-03_110824 Sample Type Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:18	0	0	120	4.02	0.00	6.91	1.22	105.4	2.5	15.1	29.8	Clear	None
14:23	5	5	120	4.04	0.16	6.85	1.22	89.5	2.1	15	29.9	Clear	None
14:28	5	10	120	4.04	0.32	6.82	1.23	76.4	1.89	15	28.2	Clear	None
14:33	5	15	120	4.04	0.48	6.82	1.23	56.8	1.79	15	26.1	Clear	None
14:38	5	20	120	4.04	0.63	7.69	0.023	32.1	1.32	15.1	26.3	Clear	None
14:43	5	25	120	4.03	0.79	7.7	0.1	33.4	1.36	15.1	26.6	Clear	None
14:48	5	30	120	4.03	0.95	7.71	0.12	9.37	1.34	15.1	26.6	Clear	None
14:52	4	34	120	4.03	1.08	7.73	0.12	8.99	1.33	15	26.5	Clear	None
14:57	5	39	120	4.03	1.24	7.72	0.12	9.12	1.34	15	26.6	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250 mL Plastic	1	None
PCB's	1 L Amber	2	None
PFAS	250mL HDPE Plastic	2	None

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Offsite Well Locked at Arrival: yes
Condition of Well: Good condition Well Locked at Departure: yes
Well Completion: Flush mount Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWOS-09R	Date	11/6/2024
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	60.3 degrees F and . The wind is blowing SW at 9.2 mph.	
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2
Static Water Level (ft-bmp)	27.36	Total Depth (ft-bmp)	32.2	Water Column (ft)	4.84
Purge Start	10:40	Pump Intake (ft-bmp)	29.9	Purge Method	Low-Flow
Purge End	11:30	Volumes Purged	1.61	Sample ID	MWOS-09R_110624
Sample Time	11:25	Gallons Purged	1.27	Replicate/ Code No.	NA
				Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:42	0	0	120	27.37	0.00	7.56	0.85	26.4	0.51	19.3	21.3	Clear	None
10:47	5	5	120	27.37	0.16	7.24	0.83	25.8	2.56	19	62.6	Clear	None
10:52	5	10	120	27.36	0.32	6.88	0.83	22.5	1.96	19.1	-18.2	Clear	None
10:57	5	15	120	27.36	0.48	7.48	0.82	17.1	0.14	19.2	-24.4	Clear	None
11:02	5	20	120	27.36	0.63	7.02	0.84	8.99	0.26	18.3	5.4	Clear	None
11:07	5	25	120	27.37	0.79	7.07	0.84	4.76	0.74	18.2	40.4	Clear	None
11:12	5	30	120	27.35	0.95	7.26	0.84	3.76	0.82	18.2	9.9	Clear	None
11:17	5	35	120	27.35	1.11	7.26	0.84	3.77	0.82	18.2	9.9	Clear	None
11:22	5	40	120	27.35	1.27	7.24	0.84	3.46	0.81	18.3	9.1	Clear	None

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

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Offsite	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWW01-SEN03	Date	11/7/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	46.0 degrees F and Mostly Clear. The wind is blowing N/NW at 4.7 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	37.66	Total Depth (ft-bmp)	48.05	Water Column (ft)	10.39	Gallons in Well	1.69
Purge Start	10:30	Pump Intake (ft-bmp)	45.5	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	11:24	Volumes Purged	1.64	Sample ID	MWW01-SEN03_GW-110724	Sampled by	Garrett Link
Sample Time	11:15	Gallons Purged	2.77	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
10:33	0	0	300	38.41	0.00	7.41	2.689	51.5	0.16	12.5	-208	Clear	None
10:38	5	5	300	38.68	0.40	7.42	2.68	16.4	0.13	12.9	219.7	Clear	None
10:43	5	10	300	38.79	0.79	7.4	2.667	13	0.13	13.2	-220.5	Clear	None
10:48	5	15	300	38.82	1.19	7.38	2.642	9.07	0.1	13.6	-217.4	Clear	None
10:53	5	20	300	38.83	1.59	7.36	2.633	6.65	0.11	13.5	-214.7	Clear	None
10:58	5	25	300	38.82	1.98	7.35	2.611	4.43	0.17	13.7	-211.2	Clear	None
11:03	5	30	300	38.82	2.38	7.35	2.603	4	0.11	13.8	-207.6	Clear	None
11:08	5	35	300	38.82	2.77	7.34	2.588	4.13	0.1	13.8	-207.5	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments: Per Arcadis TGI, DO is stable with 3 readings below 0.5 mg/L

Well Casing Volume Conversion

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

Well Information

Well Location: SMFD	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number 30214041 Well ID MWV10-03 Date 11/8/2024

Project Name/Location RACER Pontiac North Campus 2024 Weather(°F) 55.9 degrees F and Mostly Clear. The wind is blowing N/NW at 12.8 mph.

Measuring Pt. Description Top of Inner Casing MP Elevation Casing Diameter (in) 2 Well Casing Material PVC

Static Water Level (ft-bmp) 8.81 Total Depth (ft-bmp) 11.62 Water Column (ft) 2.81 Gallons in Well 0.46

Purge Start 16:28 Pump Intake (ft-bmp) 9.1 Purge Method Low-Flow Purge Equipment Peristaltic

Purge End 17:05 Volumes Purged 2.07 Sample ID MWV10-03_GW-110824 Sampled by Alaina Ralko

Sample Time 17:00 Gallons Purged 0.95 Replicate/ Code No. NA Sample Type Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:30	0	0	120	8.83	0.00	7.22	1.26	106	2	15.86	42.3	Clear	None
16:35	5	5	120	8.85	0.16	7.22	1.26	54.1	2.06	15.4	39.8	Clear	None
16:40	5	10	120	8.86	0.32	7.22	1.25	23.6	3.19	15.1	39	Clear	None
16:45	5	15	120	8.89	0.48	7.23	1.24	13.4	2.02	15	36.5	Clear	None
16:50	5	20	120	8.89	0.63	7.34	1.62	0.02	2.78	14.5	11.7	Clear	None
16:55	5	25	120	8.89	0.79	7.35	1.6	0.02	2.77	14.5	11.2	Clear	None
17:00	5	30	120	8.89	0.95	7.36	1.6	0.02	2.78	14.5	10.7	Clear	None

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

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: SMFD Well Locked at Arrival: yes
Condition of Well: Good condition Well Locked at Departure: yes
Well Completion: Stick-up Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWW1-02	Date	11/7/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	53.1 degrees F and Clear. The wind is blowing at 3.4 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	5.01	Total Depth (ft-bmp)	15.09	Water Column (ft)	10.08	Gallons in Well	1.64
Purge Start	13:18	Pump Intake (ft-bmp)	12.5	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	14:50	Volumes Purged	1.41	Sample ID	MWW1-02_GW-110724	Sampled by	Garrett Link
Sample Time	14:30	Gallons Purged	2.31	Replicate/Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:20	0	0	145	5.10	0.00	6.71	2.334	43.4	0.4	15.4	-89.6	Clear	None
13:25	5	5	145	5.09	0.19	6.7	2.33	49.4	0.28	15.4	-87.6	Clear	None
13:30	5	10	145	5.09	0.38	6.69	2.33	45.9	0.26	15.4	-84.9	Clear	None
13:35	5	15	125	5.07	0.50	6.7	2.329	39.7	0.21	15.5	-85.2	Clear	None
13:40	5	20	125	5.07	0.66	6.71	2.328	34.8	0.2	15.5	-85.5	Clear	None
13:45	5	25	125	5.07	0.83	6.72	2.326	29.5	0.2	15.4	-85.2	Clear	None
13:50	5	30	125	5.07	0.99	6.73	2.322	24.7	0.19	15.4	-85.9	Clear	None
13:55	5	35	125	5.07	1.16	6.74	2.32	24.4	0.2	15.5	-85.2	Clear	None
14:00	5	40	125	5.07	1.32	6.74	2.317	26	0.05	15.4	-82.1	Clear	None
14:05	5	45	125	5.07	1.49	6.75	2.314	21.7	0.07	15.3	-82	Clear	None
14:10	5	50	125	5.07	1.65	6.76	2.312	16.7	0.05	15.3	-81.8	Clear	None
14:15	5	55	125	5.07	1.82	6.76	2.313	14.2	0.05	15.3	-81.2	Clear	None
14:20	5	60	125	5.07	1.98	6.76	2.313	11.9	0.06	15.2	81.2	Clear	None
14:25	5	65	125	5.07	2.15	6.77	2.308	11.4	0.06	15.3	-81.8	Clear	None
14:30	5	70	125	5.07	2.31	6.77	2.31	9.9	0.05	15.3	-82.5	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
PFAS	250mL HDPE Plastic	2	None
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: USPS property, south	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWW1-04	Date	11/8/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	55.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	8.87	Total Depth (ft-bmp)	16.36	Water Column (ft)	7.49	Gallons in Well	1.22
Purge Start	12:49	Pump Intake (ft-bmp)	13.75	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	13:32	Volumes Purged	1.07	Sample ID	MWW1-04_GW-110824	Sampled by	Garrett Link
Sample Time	13:20	Gallons Purged	1.31	Replicate/Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:50	0	0	165	8.87	0.00	8.97	0.629	10.2	1.54	18	-17.4	Clear	Mild
12:55	5	5	165	8.87	0.22	9.69	0.663	3.47	0.38	18.1	-179.5	Clear	Mild
13:00	5	10	165	8.87	0.44	10	0.687	8.49	0.32	17.8	-199.8	Clear	Mild
13:05	5	15	165	8.87	0.65	10.1	0.697	5.52	0.3	17.8	-204.9	Clear	Mild
13:10	5	20	165	8.87	0.87	10.16	0.701	2.12	0.32	18	-207.5	Clear	Mild
13:15	5	25	165	8.87	1.09	10.2	0.706	1.96	0.28	17.9	-210	Clear	Mild
13:20	5	30	165	8.87	1.31	10.2	0.706	0.93	0.29	18.2	-211.4	Clear	Mild

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
PFAS	250mL HDPE Plastic	2	None
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments: Per Arcadis TGI, turbidity is stable with three readings below 5 ntu and DO is stable with three readings below 0.5 mg/L

Well Casing Volume Conversion

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

Well Information

Well Location: NW corner of Montcalm and Saginaw St.	Well Locked at Arrival: no
Condition of Well: Good condition	Well Locked at Departure: no
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number 30214041 Well ID MWV1-06 Date 11/7/2024

Project Name/Location	RACER Pontiac North Campus 2024			Weather(°F)	62.1 degrees F and Cloudy. The wind is blowing W at 9.2 mph.		
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	6.42	Total Depth (ft-bmp)	14.22	Water Column (ft)	7.80	Gallons in Well	1.27
Purge Start	14:13	Pump Intake (ft-bmp)	12.2	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	14:50	Volumes Purged	0.75	Sample ID	MWOS-10_GW-110624	Sampled by	Alaina Ralko
Sample Time	14:50	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
14:15	0	0	120	6.43	0.00	7.04	1.39	13.3	1.15	16.4	29.4	Clear	None
14:20	5	5	120	6.43	0.16	7.03	1.39	13.5	0.9	16.1	22.2	Clear	None
14:25	5	10	120	6.42	0.32	6.95	1.27	10.3	0.88	16	24.7	Clear	None
14:30	5	15	120	6.42	0.48	6.99	0.88	7.9	0.87	16.1	-51.3	Clear	None
14:35	5	20	120	6.43	0.63	7	0.87	6.54	0.32	16.2	-54.4	Clear	None
14:40	5	25	120	6.44	0.79	7.01	0.86	6.32	0.33	16.2	-56.1	Clear	None
14:45	5	30	120	6.44	0.95	7.02	0.86	6.45	0.34	16.1	-56.3	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
PFAS	250mL HDPE Plastic	2	None
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Offsite Well Locked at Arrival: yes
Condition of Well: Good condition Well Locked at Departure: yes
Well Completion: Flush mount Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	SEEP VAULT		Date	11/7/2024	
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	57.0 degrees F and . The wind is blowing W at 10.3 mph.			
Measuring Pt. Description	Top of Outer Casing	MP Elevation	NM	Casing Diameter (in)	NA	Well Casing Material	NM
Static Water Level (ft-bmp)	0.93	Total Depth (ft-bmp)	7.04	Water Column (ft)	6.11	Gallons in Well	NM
Purge Start	16:19	Pump Intake (ft-bmp)	3.5	Purge Method	No-Purge	Purge Equipment	Peristaltic
Purge End	NA	Volumes Purged	NA	Sample ID	SEEP-VAULT_GW-110724	Sampled by	Garrett Link
Sample Time	16:10	Gallons Purged	0.15	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:20	0	0	165	0.93	0.00	7.15	3.115	7.15	0.48	14.4	-121.8	Brown	Mild

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	1	None

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: SMFD	Well Locked at Arrival: NA
Condition of Well: NA	Well Locked at Departure: NA
Well Completion: NA	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	TW-10-01	Date	11/5/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	71.1 degrees F and Cloudy. The wind is blowing S/SW at 13.9 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	20.43	Total Depth (ft-bmp)	32.75	Water Column (ft)	12.32	Gallons in Well	2.00
Purge Start	16:27	Pump Intake (ft-bmp)	22.9	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	17:09	Volumes Purged	0.48	Sample ID	TW-10-01_110524	Sampled by	Alaina Ralko
Sample Time	17:05	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
16:29	0	0	120	20.45	0.00	6.91	1.09	2.14	2.08	20	-55.4	Clear	None
16:34	5	5	120	20.44	0.16	6.87	1.35	2.23	1.76	18	-53.7	Clear	None
16:39	5	10	120	20.48	0.32	6.89	1.48	0.88	1.26	17.6	-56.7	Clear	None
16:44	5	15	120	20.50	0.48	6.83	1.5	0.02	0.9	17.5	-56	Clear	None
16:49	5	20	120	20.53	0.63	6.9	1.53	0.02	0.27	17.2	-80.6	Clear	None
16:54	5	25	120	20.53	0.79	6.88	1.53	0.02	0.28	17.3	-80	Clear	None
16:59	5	30	120	20.53	0.95	6.89	1.53	0.02	0.28	17.3	-80.2	Clear	None

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane 8270D SIM	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: SMFD	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	TW-MD-05		Date	11/7/2024	
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	55.9 degrees F and Mostly Clear. The wind is blowing W at 6.9 mph.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	5.59	Total Depth (ft-bmp)	13.32	Water Column (ft)	7.73	Gallons in Well	1.26
Purge Start	15:10	Pump Intake (ft-bmp)	10.75	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	15:58	Volumes Purged	1.19	Sample ID	TW-MD-05_GW-110724		Sampled by Garrett Link
Sample Time	15:50	Gallons Purged	1.5	Replicate/ Code No.	NA		Sample Type Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
15:12	0	0	165	5.85	0.00	7.16	2.978	13.1	0.59	14.1	-130.5	Clear	Mild
15:17	5	5	165	5.86	0.22	7.21	3.044	12.6	0.24	14	-146.6	Clear	Mild
15:22	5	10	165	5.86	0.44	7.23	3.161	7.1	0.18	13.9	-150.1	Clear	Mild
15:27	5	15	165	5.86	0.65	7.24	3.199	3.92	0.17	13.9	-153.6	Clear	Mild
15:32	5	20	165	5.86	0.87	7.26	3.248	5.19	0.15	13.9	-157.8	Clear	Mild
15:37	5	25	165	5.86	1.09	7.25	3.224	2.36	0.16	14.1	-156.5	Clear	Mild
15:42	5	30	165	5.86	1.31	7.26	3.239	1.98	0.15	14	-156.9	Clear	Mild
15:47	5	35	165	5.86	1.53	7.27	3.25	3.32	0.14	14	-157.1	Clear	Mild

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments: Per Arcadis TGI, turbidity is stable with 3 readings below 5 ntu and 3 DO readings below 0.5 mg/L

Well Casing Volume Conversion

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

Well Information

Well Location: USPS property, south	Well Locked at Arrival: no
Condition of Well: Good condition	Well Locked at Departure: no
Well Completion: Stick-up	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	MWOS-10	Date	11/8/2024		
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	55.0 degrees F and Mostly Clear.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	28.55	Total Depth (ft-bmp)	32.75	Water Column (ft)	4.20	Gallons in Well	0.68
Purge Start	12:42	Pump Intake (ft-bmp)	30.2	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	13:21	Volumes Purged	1.40	Sample ID	MWOS-10_GW-110824	Sampled by	Alaina Ralko
Sample Time	13:20	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
12:44	0	0	120	28.55	0.00	7.59	1.01	39.1	3.04	15.1	29.4	Clear	None
12:49	5	5	120	28.56	0.16	7.46	0.96	28.4	3.05	15.1	39.7	Clear	None
12:54	5	10	120	28.55	0.32	7.36	0.87	10.1	4.01	15.1	30.4	Clear	None
12:59	5	15	120	28.55	0.48	7.36	0.88	10.1	4.03	15.2	30.5	Clear	None
13:04	5	20	120	28.56	0.63	7.47	0.79	3.32	2.1	14.8	1.6	Clear	None
13:09	5	25	120	28.56	0.79	7.47	0.79	3.28	2.11	14.8	1.1	Clear	None
13:14	5	30	120	28.56	0.95	7.47	0.79	3.22	2.1	14.8	1	Clear	None

Constituent Sampled	Container	Number	Preservative
PFAS	250mL HDPE Plastic	2	None
VOCs SW-846 8260C	40 mL Glass	3	HCL

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: Offsite	Well Locked at Arrival: yes
Condition of Well: Good condition	Well Locked at Departure: yes
Well Completion: Flush mount	Key Number To Well: NA

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

mV = milliv

Groundwater Sampling Form



Project Number	30214041	Well ID	TW-MD-02		Date	11/12/2024	
Project Name/Location	RACER Pontiac North Campus 2024		Weather(°F)	46.0 degrees F and Mostly Cloudy.			
Measuring Pt. Description	Top of Inner Casing	MP Elevation	NM	Casing Diameter (in)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	6.30	Total Depth (ft-bmp)	8.45	Water Column (ft)	2.15	Gallons in Well	0.35
Purge Start	13:29	Pump Intake (ft-bmp)	7	Purge Method	Low-Flow	Purge Equipment	Peristaltic
Purge End	14:10	Volumes Purged	2.72	Sample ID	TW-MD-02	Sampled by	Alaina Ralko
Sample Time	14:05	Gallons Purged	0.95	Replicate/ Code No.	NA	Sample Type	Grab

Time	Minutes Elapsed	Total Elapsed Minutes	Rate mL/min	Depth to Water (ft)	Gallon Purged	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature °C	Redox (mV)	Appearance	
												Color	Odor
13:31	0	0	120	6.32	0.00	6.95	2.76	9.8	1.88	14.6	85.9	Clear	None
13:36	5	5	120	6.32	0.16	6.9	2.79	8.87	1.46	14.5	81.3	Clear	None
13:41	5	10	120	6.31	0.32	6.87	2.81	8.54	1.24	14.4	78	Clear	None
13:46	5	15	120	6.33	0.48	6.86	2.81	4.31	1.07	14.4	73.7	Clear	None
13:51	5	20	120	6.33	0.63	6.99	2.81	0.15	0.35	14.3	2.8	Clear	None
13:56	5	25	120	6.33	0.79	7.01	2.81	0.11	0.35	14.3	2.1	Clear	None
14:01	5	30	120	6.33	0.95	7.01	2.82	0.18	0.36	14.3	2.5	Clear	None

Constituent Sampled	Container	Number	Preservative
Site specific inorganics	125 mL Plastic	1	HNO3
Total Dissolved Solids	250mL HDPE Plastic	1	None

Comments:

Well Casing Volume Conversion

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

Well Information

Well Location: _____	Well Locked at Arrival: ☐ yes
Condition of Well: ☐ Good condition	Well Locked at Departure: ☐ yes
Well Completion: ☐ Stick-up	Key Number To Well: ☐ NA

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

mV = milliv

Appendix E

Laboratory Analytical Reports



November 27, 2024

Lexi Nickerson
Arcadis
7575 Huntington Park Dr 130
Columbus, OH 43235

RE: Project: 30214041.00006 Pontiac MI
Pace Project No.: 10715185

Dear Lexi Nickerson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 11, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carolynne Trout

Carolynne Trout
carolynne.trout@pacelabs.com
1(612)607-6351
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW
Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10715185001	MW-01-17_GW-110724	Water	11/07/24 12:20	11/11/24 08:50
10715185002	EB-02_110724	Water	11/07/24 12:37	11/11/24 08:50
10715185003	MWW1-02_GW-110724	Water	11/07/24 14:30	11/11/24 08:50
10715185004	SEEP-VAULT_GW-110724	Water	11/07/24 16:10	11/11/24 08:50
10715185005	MWM30-01_GW-110824	Water	11/08/24 11:05	11/11/24 08:50
10715185006	MWW1-04_GW-110824	Water	11/08/24 13:20	11/11/24 08:50
10715185007	MW0S-02_GW-110824	Water	11/08/24 14:40	11/11/24 08:50
10715185008	EB-03_110824	Water	11/08/24 15:25	11/11/24 08:50
10715185009	DUP-02_110824	Water	11/08/24 15:25	11/11/24 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10715185001	MW-01-17_GW-110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185002	EB-02_110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185003	MWW1-02_GW-110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185004	SEEP-VAULT_GW-110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185005	MWM30-01_GW-110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185006	MWW1-04_GW-110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185007	MW0S-02_GW-110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185008	EB-03_110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715185009	DUP-02_110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

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SUMMARY OF DETECTION

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10715185001	MW-01-17_GW-110724					
ENV-SOP-MIN4-0178	PFHxA	6.2	ng/L	4.1	11/25/24 17:25	
ENV-SOP-MIN4-0178	PFHpA	5.1	ng/L	4.1	11/25/24 17:25	
ENV-SOP-MIN4-0178	PFHxS	13.1	ng/L	3.8	11/25/24 17:25	
ENV-SOP-MIN4-0178	PFOS	13.1	ng/L	3.8	11/25/24 17:25	
ENV-SOP-MIN4-0178	PFOA	14.0	ng/L	4.1	11/25/24 17:25	
10715185003	MWW1-02_GW-110724					
ENV-SOP-MIN4-0178	PFOS	53.2	ng/L	19.3	11/25/24 17:39	
10715185004	SEEP-VAULT_GW-110724					
ENV-SOP-MIN4-0178	PFOS	105	ng/L	19.1	11/25/24 17:47	
10715185005	MWM30-01_GW-110824					
ENV-SOP-MIN4-0178	6:2 FTS	27.8	ng/L	3.8	11/25/24 17:54	
ENV-SOP-MIN4-0178	PFHxA	14.1	ng/L	4.0	11/25/24 17:54	
ENV-SOP-MIN4-0178	PFPeA	12.8	ng/L	4.0	11/25/24 17:54	
ENV-SOP-MIN4-0178	PFHpA	16.2	ng/L	4.0	11/25/24 17:54	
ENV-SOP-MIN4-0178	PFHxS	13.7	ng/L	3.6	11/25/24 17:54	
ENV-SOP-MIN4-0178	PFOS	4.7	ng/L	3.7	11/25/24 17:54	
ENV-SOP-MIN4-0178	PFOA	39.7	ng/L	4.0	11/25/24 17:54	
10715185006	MWW1-04_GW-110824					
ENV-SOP-MIN4-0178	NEtFOSAA	11.4	ng/L	4.0	11/25/24 18:01	
ENV-SOP-MIN4-0178	PFHxS	6.7	ng/L	3.6	11/25/24 18:01	
ENV-SOP-MIN4-0178	PFOS	98.6	ng/L	3.7	11/25/24 18:01	
ENV-SOP-MIN4-0178	PFOA	6.5	ng/L	4.0	11/25/24 18:01	
10715185007	MW0S-02_GW-110824					
ENV-SOP-MIN4-0178	PFBS	4.7	ng/L	1.8	11/25/24 18:08	
ENV-SOP-MIN4-0178	PFBA	6.1	ng/L	2.0	11/25/24 18:08	
ENV-SOP-MIN4-0178	PFHxS	6.3	ng/L	1.8	11/25/24 18:08	
ENV-SOP-MIN4-0178	PFOS	7.8	ng/L	1.9	11/25/24 18:08	
ENV-SOP-MIN4-0178	PFOA	5.1	ng/L	2.0	11/25/24 18:08	
10715185009	DUP-02_110824					
ENV-SOP-MIN4-0178	6:2 FTS	30.3	ng/L	3.7	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFBS	19.0	ng/L	3.4	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFHxA	17.6	ng/L	3.9	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFPeA	14.8	ng/L	3.9	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFHpA	15.6	ng/L	3.9	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFHxS	14.3	ng/L	3.5	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFOS	5.2	ng/L	3.6	11/25/24 18:52	
ENV-SOP-MIN4-0178	PFOA	39.6	ng/L	3.9	11/25/24 18:52	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Method: ENV-SOP-MIN4-0178

Description: PFAS ID NPW

Client: Arcadis-OH

Date: November 27, 2024

General Information:

9 samples were analyzed for ENV-SOP-MIN4-0178 by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with ENV-SOP-MIN4-0178 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 980883

S0: Surrogate recovery outside laboratory control limits.

- DUP-02_110824 (Lab ID: 10715185009)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
 - 13C4-PFBA (S)
- MSD (Lab ID: 5124669)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
- MW-01-17_GW-110724 (Lab ID: 10715185001)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
 - 13C4-PFBA (S)
- MW0S-02_GW-110824 (Lab ID: 10715185007)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
- MWM30-01_GW-110824 (Lab ID: 10715185005)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Method: ENV-SOP-MIN4-0178

Description: PFAS ID NPW

Client: Arcadis-OH

Date: November 27, 2024

QC Batch: 980883

S0: Surrogate recovery outside laboratory control limits.

- 13C4-PFBA (S)
- MWW1-04_GW-110824 (Lab ID: 10715185006)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
- 13C4-PFBA (S)
- SEEP-VAULT_GW-110724 (Lab ID: 10715185004)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MW-01-17_GW-110724 Lab ID: 10715185001 Collected: 11/07/24 12:20 Received: 11/11/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 120.805 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	3.9	0.84	1	11/22/24 13:25	11/25/24 17:25	763051-92-9		
4:2 FTS	ND	ng/L	3.9	0.75	1	11/22/24 13:25	11/25/24 17:25	757124-72-4		
6:2 FTS	ND	ng/L	3.9	1.2	1	11/22/24 13:25	11/25/24 17:25	27619-97-2		
8:2 FTS	ND	ng/L	4.0	1.6	1	11/22/24 13:25	11/25/24 17:25	39108-34-4		
9CI-PF3ONS	ND	ng/L	3.8	0.73	1	11/22/24 13:25	11/25/24 17:25	756426-58-1		
ADONA	ND	ng/L	3.9	0.66	1	11/22/24 13:25	11/25/24 17:25	919005-14-4		
HFPO-DA	ND	ng/L	4.1	0.52	1	11/22/24 13:25	11/25/24 17:25	13252-13-6		
NEtFOSAA	ND	ng/L	4.1	1.2	1	11/22/24 13:25	11/25/24 17:25	2991-50-6		
NMeFOSAA	ND	ng/L	4.1	1.6	1	11/22/24 13:25	11/25/24 17:25	2355-31-9		
PFBS	ND	ng/L	3.7	0.42	1	11/22/24 13:25	11/25/24 17:25	375-73-5		
PFDA	ND	ng/L	4.1	0.52	1	11/22/24 13:25	11/25/24 17:25	335-76-2		
PFHxA	6.2	ng/L	4.1	0.78	1	11/22/24 13:25	11/25/24 17:25	307-24-4		
PFBA	ND	ng/L	4.1	0.58	1	11/22/24 13:25	11/25/24 17:25	375-22-4		
PFDS	ND	ng/L	4.0	1.2	1	11/22/24 13:25	11/25/24 17:25	335-77-3		
PFHpS	ND	ng/L	3.9	1.3	1	11/22/24 13:25	11/25/24 17:25	375-92-8		
PFNS	ND	ng/L	4.0	0.98	1	11/22/24 13:25	11/25/24 17:25	68259-12-1		
PFOSA	ND	ng/L	4.1	0.82	1	11/22/24 13:25	11/25/24 17:25	754-91-6		
PFPeA	ND	ng/L	4.1	0.38	1	11/22/24 13:25	11/25/24 17:25	2706-90-3		
PFPeS	ND	ng/L	3.9	0.53	1	11/22/24 13:25	11/25/24 17:25	2706-91-4		
PFDoA	ND	ng/L	4.1	0.89	1	11/22/24 13:25	11/25/24 17:25	307-55-1		
PFHpA	5.1	ng/L	4.1	0.49	1	11/22/24 13:25	11/25/24 17:25	375-85-9		
PFHxS	13.1	ng/L	3.8	0.48	1	11/22/24 13:25	11/25/24 17:25	355-46-4		
PFNA	ND	ng/L	4.1	0.43	1	11/22/24 13:25	11/25/24 17:25	375-95-1		
PFOS	13.1	ng/L	3.8	1.1	1	11/22/24 13:25	11/25/24 17:25	1763-23-1		
PFOA	14.0	ng/L	4.1	0.55	1	11/22/24 13:25	11/25/24 17:25	335-67-1		
PFTeDA	ND	ng/L	4.1	0.75	1	11/22/24 13:25	11/25/24 17:25	376-06-7		
PFTrDA	ND	ng/L	4.1	0.58	1	11/22/24 13:25	11/25/24 17:25	72629-94-8		
PFUnA	ND	ng/L	4.1	1.3	1	11/22/24 13:25	11/25/24 17:25	2058-94-8		
Surrogates										
13C26:2FTS (S)	254	%	50-150		1	11/22/24 13:25	11/25/24 17:25			S0
13C28:2FTS (S)	238	%	50-150		1	11/22/24 13:25	11/25/24 17:25			S0
13C24:2FTS (S)	190	%	50-150		1	11/22/24 13:25	11/25/24 17:25			S0
13C2-PFDoA (S)	119	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C2PFHxDA (S)	101	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C2-PFTA (S)	107	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C3HFPO-DA (S)	65	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C3-PFBS (S)	81	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C3-PFHxS (S)	96	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C4-PFBA (S)	42	%	50-150		1	11/22/24 13:25	11/25/24 17:25			S0
13C4-PFHpA (S)	100	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C5-PFHxA (S)	81	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C5-PFPeA (S)	65	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C6-PFDA (S)	122	%	50-150		1	11/22/24 13:25	11/25/24 17:25			
13C7-PFUdA (S)	123	%	50-150		1	11/22/24 13:25	11/25/24 17:25			

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MW-01-17_GW-110724		Lab ID: 10715185001		Collected: 11/07/24 12:20		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 120.805 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	107	%.	50-150		1	11/22/24 13:25	11/25/24 17:25		
13C8-PFOS (S)	108	%.	50-150		1	11/22/24 13:25	11/25/24 17:25		
13C8-PFOSA (S)	105	%.	50-150		1	11/22/24 13:25	11/25/24 17:25		
13C9-PFNA (S)	109	%.	50-150		1	11/22/24 13:25	11/25/24 17:25		
d3-MeFOSAA (S)	108	%.	50-150		1	11/22/24 13:25	11/25/24 17:25		
d3-NMeFOSA (S)	87	%.	10-150		1	11/22/24 13:25	11/25/24 17:25		
d5-EtFOSAA (S)	123	%.	50-150		1	11/22/24 13:25	11/25/24 17:25		
d5-NEtFOSA (S)	82	%.	10-150		1	11/22/24 13:25	11/25/24 17:25		
d7-NMeFOSE (S)	81	%.	10-150		1	11/22/24 13:25	11/25/24 17:25		
d9-NEtFOSE (S)	80	%.	10-150		1	11/22/24 13:25	11/25/24 17:25		

Sample: EB-02_110724		Lab ID: 10715185002		Collected: 11/07/24 12:37		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 243.122 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	1.9	0.42	1	11/22/24 13:25	11/25/24 17:32	763051-92-9	
4:2 FTS	ND	ng/L	1.9	0.37	1	11/22/24 13:25	11/25/24 17:32	757124-72-4	
6:2 FTS	ND	ng/L	2.0	0.59	1	11/22/24 13:25	11/25/24 17:32	27619-97-2	
8:2 FTS	ND	ng/L	2.0	0.81	1	11/22/24 13:25	11/25/24 17:32	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.9	0.36	1	11/22/24 13:25	11/25/24 17:32	756426-58-1	
ADONA	ND	ng/L	1.9	0.33	1	11/22/24 13:25	11/25/24 17:32	919005-14-4	
HFPO-DA	ND	ng/L	2.1	0.26	1	11/22/24 13:25	11/25/24 17:32	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	0.58	1	11/22/24 13:25	11/25/24 17:32	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	0.80	1	11/22/24 13:25	11/25/24 17:32	2355-31-9	
PFBS	ND	ng/L	1.8	0.21	1	11/22/24 13:25	11/25/24 17:32	375-73-5	
PFDA	ND	ng/L	2.1	0.26	1	11/22/24 13:25	11/25/24 17:32	335-76-2	
PFHxA	ND	ng/L	2.1	0.39	1	11/22/24 13:25	11/25/24 17:32	307-24-4	
PFBA	ND	ng/L	2.1	0.29	1	11/22/24 13:25	11/25/24 17:32	375-22-4	
PFDS	ND	ng/L	2.0	0.58	1	11/22/24 13:25	11/25/24 17:32	335-77-3	
PFHpS	ND	ng/L	2.0	0.65	1	11/22/24 13:25	11/25/24 17:32	375-92-8	
PFNS	ND	ng/L	2.0	0.49	1	11/22/24 13:25	11/25/24 17:32	68259-12-1	
PFOSA	ND	ng/L	2.1	0.41	1	11/22/24 13:25	11/25/24 17:32	754-91-6	
PFPeA	ND	ng/L	2.1	0.19	1	11/22/24 13:25	11/25/24 17:32	2706-90-3	
PFPeS	ND	ng/L	1.9	0.26	1	11/22/24 13:25	11/25/24 17:32	2706-91-4	
PFDoA	ND	ng/L	2.1	0.44	1	11/22/24 13:25	11/25/24 17:32	307-55-1	
PFHpA	ND	ng/L	2.1	0.24	1	11/22/24 13:25	11/25/24 17:32	375-85-9	
PFHxS	ND	ng/L	1.9	0.24	1	11/22/24 13:25	11/25/24 17:32	355-46-4	
PFNA	ND	ng/L	2.1	0.21	1	11/22/24 13:25	11/25/24 17:32	375-95-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: EB-02_110724 Lab ID: 10715185002 Collected: 11/07/24 12:37 Received: 11/11/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 243.122 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
PFOS	ND	ng/L	1.9	0.52	1	11/22/24 13:25	11/25/24 17:32	1763-23-1	
PFOA	ND	ng/L	2.1	0.27	1	11/22/24 13:25	11/25/24 17:32	335-67-1	
PFTeDA	ND	ng/L	2.1	0.37	1	11/22/24 13:25	11/25/24 17:32	376-06-7	
PFTTrDA	ND	ng/L	2.1	0.29	1	11/22/24 13:25	11/25/24 17:32	72629-94-8	
PFUnA	ND	ng/L	2.1	0.66	1	11/22/24 13:25	11/25/24 17:32	2058-94-8	
Surrogates									
13C26:2FTS (S)	69	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C28:2FTS (S)	99	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C24:2FTS (S)	68	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C2-PFDoA (S)	113	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C2PFHxDA (S)	91	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C2-PFTA (S)	108	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C3HFPO-DA (S)	114	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C3-PFBS (S)	108	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C3-PFHxS (S)	104	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C4-PFBA (S)	109	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C4-PFHpA (S)	107	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C5-PFHxA (S)	107	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C5-PFPeA (S)	121	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C6-PFDA (S)	115	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C7-PFUDa (S)	120	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C8-PFOA (S)	115	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C8-PFOS (S)	114	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C8-PFOSA (S)	107	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
13C9-PFNA (S)	113	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
d3-MeFOSAA (S)	103	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
d3-NMeFOSA (S)	73	%	10-150		1	11/22/24 13:25	11/25/24 17:32		
d5-EtFOSAA (S)	105	%	50-150		1	11/22/24 13:25	11/25/24 17:32		
d5-NEtFOSA (S)	71	%	10-150		1	11/22/24 13:25	11/25/24 17:32		
d7-NMeFOSE (S)	96	%	10-150		1	11/22/24 13:25	11/25/24 17:32		
d9-NEtFOSE (S)	97	%	10-150		1	11/22/24 13:25	11/25/24 17:32		

Sample: MWW1-02_GW-110724 Lab ID: 10715185003 Collected: 11/07/24 14:30 Received: 11/11/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 23.917 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	19.7	4.2	1	11/22/24 13:25	11/25/24 17:39	763051-92-9	
4:2 FTS	ND	ng/L	19.5	3.8	1	11/22/24 13:25	11/25/24 17:39	757124-72-4	
6:2 FTS	ND	ng/L	19.9	6.0	1	11/22/24 13:25	11/25/24 17:39	27619-97-2	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MWW1-02_GW-110724 Lab ID: 10715185003 Collected: 11/07/24 14:30 Received: 11/11/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 23.917 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
8:2 FTS	ND	ng/L	20.2	8.2	1	11/22/24 13:25	11/25/24 17:39	39108-34-4	
9CI-PF3ONS	ND	ng/L	19.4	3.7	1	11/22/24 13:25	11/25/24 17:39	756426-58-1	
ADONA	ND	ng/L	19.8	3.3	1	11/22/24 13:25	11/25/24 17:39	919005-14-4	
HFPO-DA	ND	ng/L	20.9	2.6	1	11/22/24 13:25	11/25/24 17:39	13252-13-6	
NEtFOSAA	ND	ng/L	20.9	5.9	1	11/22/24 13:25	11/25/24 17:39	2991-50-6	
NMeFOSAA	ND	ng/L	20.9	8.2	1	11/22/24 13:25	11/25/24 17:39	2355-31-9	
PFBS	ND	ng/L	18.5	2.1	1	11/22/24 13:25	11/25/24 17:39	375-73-5	
PFDA	ND	ng/L	20.9	2.6	1	11/22/24 13:25	11/25/24 17:39	335-76-2	
PFHxA	ND	ng/L	20.9	4.0	1	11/22/24 13:25	11/25/24 17:39	307-24-4	
PFBA	ND	ng/L	20.9	2.9	1	11/22/24 13:25	11/25/24 17:39	375-22-4	
PFDS	ND	ng/L	20.2	5.9	1	11/22/24 13:25	11/25/24 17:39	335-77-3	
PFHpS	ND	ng/L	19.9	6.6	1	11/22/24 13:25	11/25/24 17:39	375-92-8	
PFNS	ND	ng/L	20.1	5.0	1	11/22/24 13:25	11/25/24 17:39	68259-12-1	
PFOSA	ND	ng/L	20.9	4.2	1	11/22/24 13:25	11/25/24 17:39	754-91-6	
PFPeA	ND	ng/L	20.9	1.9	1	11/22/24 13:25	11/25/24 17:39	2706-90-3	
PFPeS	ND	ng/L	19.7	2.7	1	11/22/24 13:25	11/25/24 17:39	2706-91-4	
PFDoA	ND	ng/L	20.9	4.5	1	11/22/24 13:25	11/25/24 17:39	307-55-1	
PFHpA	ND	ng/L	20.9	2.5	1	11/22/24 13:25	11/25/24 17:39	375-85-9	
PFHxS	ND	ng/L	19.0	2.4	1	11/22/24 13:25	11/25/24 17:39	355-46-4	
PFNA	ND	ng/L	20.9	2.2	1	11/22/24 13:25	11/25/24 17:39	375-95-1	
PFOS	53.2	ng/L	19.3	5.3	1	11/22/24 13:25	11/25/24 17:39	1763-23-1	
PFOA	ND	ng/L	20.9	2.8	1	11/22/24 13:25	11/25/24 17:39	335-67-1	
PFTeDA	ND	ng/L	20.9	3.8	1	11/22/24 13:25	11/25/24 17:39	376-06-7	
PFTTrDA	ND	ng/L	20.9	2.9	1	11/22/24 13:25	11/25/24 17:39	72629-94-8	
PFUnA	ND	ng/L	20.9	6.7	1	11/22/24 13:25	11/25/24 17:39	2058-94-8	
Surrogates									
13C26:2FTS (S)	123	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C28:2FTS (S)	97	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C24:2FTS (S)	86	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C2-PFDoA (S)	98	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C2PFHxDA (S)	82	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C2-PFTA (S)	89	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C3HFPO-DA (S)	96	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C3-PFBS (S)	95	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C3-PFHxS (S)	105	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C4-PFBA (S)	95	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C4-PFHpA (S)	111	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C5-PFHxA (S)	103	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C5-PFPeA (S)	92	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C6-PFDA (S)	112	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C7-PFUDa (S)	106	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C8-PFOA (S)	118	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C8-PFOS (S)	116	%	50-150		1	11/22/24 13:25	11/25/24 17:39		
13C8-PFOSA (S)	90	%	50-150		1	11/22/24 13:25	11/25/24 17:39		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MWW1-02_GW-110724		Lab ID: 10715185003		Collected: 11/07/24 14:30		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 23.917 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C9-PFNA (S)	118	%.	50-150		1	11/22/24 13:25	11/25/24 17:39		
d3-MeFOSAA (S)	92	%.	50-150		1	11/22/24 13:25	11/25/24 17:39		
d3-NMeFOSA (S)	68	%.	10-150		1	11/22/24 13:25	11/25/24 17:39		
d5-EtFOSAA (S)	83	%.	50-150		1	11/22/24 13:25	11/25/24 17:39		
d5-NEtFOSA (S)	65	%.	10-150		1	11/22/24 13:25	11/25/24 17:39		
d7-NMeFOSE (S)	77	%.	10-150		1	11/22/24 13:25	11/25/24 17:39		
d9-NEtFOSE (S)	74	%.	10-150		1	11/22/24 13:25	11/25/24 17:39		

Sample: SEEP-VAULT_GW-110724		Lab ID: 10715185004		Collected: 11/07/24 16:10		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 24.277 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	19.4	4.2	1	11/22/24 13:25	11/25/24 17:47	763051-92-9	
4:2 FTS	ND	ng/L	19.3	3.7	1	11/22/24 13:25	11/25/24 17:47	757124-72-4	
6:2 FTS	ND	ng/L	19.6	5.9	1	11/22/24 13:25	11/25/24 17:47	27619-97-2	
8:2 FTS	ND	ng/L	19.9	8.1	1	11/22/24 13:25	11/25/24 17:47	39108-34-4	
9CI-PF3ONS	ND	ng/L	19.2	3.6	1	11/22/24 13:25	11/25/24 17:47	756426-58-1	
ADONA	ND	ng/L	19.5	3.3	1	11/22/24 13:25	11/25/24 17:47	919005-14-4	
HFPO-DA	ND	ng/L	20.6	2.6	1	11/22/24 13:25	11/25/24 17:47	13252-13-6	
NEtFOSAA	ND	ng/L	20.6	5.8	1	11/22/24 13:25	11/25/24 17:47	2991-50-6	
NMeFOSAA	ND	ng/L	20.6	8.0	1	11/22/24 13:25	11/25/24 17:47	2355-31-9	
PFBS	ND	ng/L	18.2	2.1	1	11/22/24 13:25	11/25/24 17:47	375-73-5	
PFDA	ND	ng/L	20.6	2.6	1	11/22/24 13:25	11/25/24 17:47	335-76-2	
PFHxA	ND	ng/L	20.6	3.9	1	11/22/24 13:25	11/25/24 17:47	307-24-4	
PFBA	ND	ng/L	20.6	2.9	1	11/22/24 13:25	11/25/24 17:47	375-22-4	
PFDS	ND	ng/L	19.9	5.8	1	11/22/24 13:25	11/25/24 17:47	335-77-3	
PFHpS	ND	ng/L	19.6	6.5	1	11/22/24 13:25	11/25/24 17:47	375-92-8	
PFNS	ND	ng/L	19.8	4.9	1	11/22/24 13:25	11/25/24 17:47	68259-12-1	
PFOSA	ND	ng/L	20.6	4.1	1	11/22/24 13:25	11/25/24 17:47	754-91-6	
PFPeA	ND	ng/L	20.6	1.9	1	11/22/24 13:25	11/25/24 17:47	2706-90-3	
PFPeS	ND	ng/L	19.4	2.6	1	11/22/24 13:25	11/25/24 17:47	2706-91-4	
PFDoA	ND	ng/L	20.6	4.4	1	11/22/24 13:25	11/25/24 17:47	307-55-1	
PFHpA	ND	ng/L	20.6	2.4	1	11/22/24 13:25	11/25/24 17:47	375-85-9	
PFHxS	ND	ng/L	18.7	2.4	1	11/22/24 13:25	11/25/24 17:47	355-46-4	
PFNA	ND	ng/L	20.6	2.2	1	11/22/24 13:25	11/25/24 17:47	375-95-1	
PFOS	105	ng/L	19.1	5.3	1	11/22/24 13:25	11/25/24 17:47	1763-23-1	
PFOA	ND	ng/L	20.6	2.7	1	11/22/24 13:25	11/25/24 17:47	335-67-1	
PFTeDA	ND	ng/L	20.6	3.7	1	11/22/24 13:25	11/25/24 17:47	376-06-7	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: SEEP-VAULT_GW-110724 Lab ID: 10715185004 Collected: 11/07/24 16:10 Received: 11/11/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 24.277 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
PFTTrDA	ND	ng/L	20.6	2.9	1	11/22/24 13:25	11/25/24 17:47	72629-94-8		
PFUnA	ND	ng/L	20.6	6.6	1	11/22/24 13:25	11/25/24 17:47	2058-94-8		
Surrogates										
13C26:2FTS (S)	185	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			S0
13C28:2FTS (S)	160	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			S0
13C24:2FTS (S)	106	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C2-PFDoA (S)	113	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C2PFHxDA (S)	91	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C2-PFTA (S)	97	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C3HFPO-DA (S)	97	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C3-PFBS (S)	97	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C3-PFHxS (S)	103	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C4-PFBA (S)	96	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C4-PFHpA (S)	118	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C5-PFHxA (S)	104	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C5-PFPeA (S)	94	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C6-PFDA (S)	127	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C7-PFUdA (S)	128	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C8-PFOA (S)	124	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C8-PFOS (S)	121	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C8-PFOSA (S)	100	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
13C9-PFNA (S)	122	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
d3-MeFOSAA (S)	101	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
d3-NMeFOSA (S)	75	%.	10-150		1	11/22/24 13:25	11/25/24 17:47			
d5-EtFOSAA (S)	103	%.	50-150		1	11/22/24 13:25	11/25/24 17:47			
d5-NEtFOSA (S)	67	%.	10-150		1	11/22/24 13:25	11/25/24 17:47			
d7-NMeFOSE (S)	67	%.	10-150		1	11/22/24 13:25	11/25/24 17:47			
d9-NEtFOSE (S)	66	%.	10-150		1	11/22/24 13:25	11/25/24 17:47			

Sample: MWM30-01_GW-110824 Lab ID: 10715185005 Collected: 11/08/24 11:05 Received: 11/11/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 124.893 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	3.8	0.81	1	11/22/24 13:25	11/25/24 17:54	763051-92-9		
4:2 FTS	ND	ng/L	3.7	0.73	1	11/22/24 13:25	11/25/24 17:54	757124-72-4		
6:2 FTS	27.8	ng/L	3.8	1.1	1	11/22/24 13:25	11/25/24 17:54	27619-97-2		
8:2 FTS	ND	ng/L	3.9	1.6	1	11/22/24 13:25	11/25/24 17:54	39108-34-4		
9CI-PF3ONS	ND	ng/L	3.7	0.71	1	11/22/24 13:25	11/25/24 17:54	756426-58-1		
ADONA	ND	ng/L	3.8	0.64	1	11/22/24 13:25	11/25/24 17:54	919005-14-4		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MWM30-01_GW-110824 Lab ID: 10715185005 Collected: 11/08/24 11:05 Received: 11/11/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 124.893 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
HFPO-DA	ND	ng/L	4.0	0.50	1	11/22/24 13:25	11/25/24 17:54	13252-13-6	
NEtFOSAA	ND	ng/L	4.0	1.1	1	11/22/24 13:25	11/25/24 17:54	2991-50-6	
NMeFOSAA	ND	ng/L	4.0	1.6	1	11/22/24 13:25	11/25/24 17:54	2355-31-9	
PFBS	ND	ng/L	3.5	0.41	1	11/22/24 13:25	11/25/24 17:54	375-73-5	
PFDA	ND	ng/L	4.0	0.50	1	11/22/24 13:25	11/25/24 17:54	335-76-2	
PFHxA	14.1	ng/L	4.0	0.76	1	11/22/24 13:25	11/25/24 17:54	307-24-4	
PFBA	ND	ng/L	4.0	0.56	1	11/22/24 13:25	11/25/24 17:54	375-22-4	
PFDS	ND	ng/L	3.9	1.1	1	11/22/24 13:25	11/25/24 17:54	335-77-3	
PFHpS	ND	ng/L	3.8	1.3	1	11/22/24 13:25	11/25/24 17:54	375-92-8	
PFNS	ND	ng/L	3.8	0.95	1	11/22/24 13:25	11/25/24 17:54	68259-12-1	
PFOSA	ND	ng/L	4.0	0.80	1	11/22/24 13:25	11/25/24 17:54	754-91-6	
PFPeA	12.8	ng/L	4.0	0.37	1	11/22/24 13:25	11/25/24 17:54	2706-90-3	
PFPeS	ND	ng/L	3.8	0.51	1	11/22/24 13:25	11/25/24 17:54	2706-91-4	
PFDaA	ND	ng/L	4.0	0.86	1	11/22/24 13:25	11/25/24 17:54	307-55-1	
PFHpA	16.2	ng/L	4.0	0.47	1	11/22/24 13:25	11/25/24 17:54	375-85-9	
PFHxS	13.7	ng/L	3.6	0.47	1	11/22/24 13:25	11/25/24 17:54	355-46-4	
PFNA	ND	ng/L	4.0	0.42	1	11/22/24 13:25	11/25/24 17:54	375-95-1	
PFOS	4.7	ng/L	3.7	1.0	1	11/22/24 13:25	11/25/24 17:54	1763-23-1	
PFOA	39.7	ng/L	4.0	0.53	1	11/22/24 13:25	11/25/24 17:54	335-67-1	
PFTeDA	ND	ng/L	4.0	0.72	1	11/22/24 13:25	11/25/24 17:54	376-06-7	
PFTrDA	ND	ng/L	4.0	0.56	1	11/22/24 13:25	11/25/24 17:54	72629-94-8	
PFUnA	ND	ng/L	4.0	1.3	1	11/22/24 13:25	11/25/24 17:54	2058-94-8	
Surrogates									
13C26:2FTS (S)	235	%	50-150		1	11/22/24 13:25	11/25/24 17:54		S0
13C28:2FTS (S)	238	%	50-150		1	11/22/24 13:25	11/25/24 17:54		S0
13C24:2FTS (S)	187	%	50-150		1	11/22/24 13:25	11/25/24 17:54		S0
13C2-PFDaA (S)	109	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C2PFHxDA (S)	89	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C2-PFTA (S)	95	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C3HFPO-DA (S)	61	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C3-PFBS (S)	73	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C3-PFHxS (S)	80	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C4-PFBA (S)	43	%	50-150		1	11/22/24 13:25	11/25/24 17:54		S0
13C4-PFHpA (S)	72	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C5-PFHxA (S)	66	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C5-PFPeA (S)	59	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C6-PFDA (S)	93	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C7-PFUdA (S)	107	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C8-PFOA (S)	71	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C8-PFOS (S)	93	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C8-PFOSA (S)	91	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
13C9-PFNA (S)	75	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
d3-MeFOSAA (S)	81	%	50-150		1	11/22/24 13:25	11/25/24 17:54		
d3-NMeFOSA (S)	78	%	10-150		1	11/22/24 13:25	11/25/24 17:54		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MWM30-01_GW-110824		Lab ID: 10715185005		Collected: 11/08/24 11:05		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 124.893 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
d5-EtFOSAA (S)	96	%.	50-150		1	11/22/24 13:25	11/25/24 17:54		
d5-NEtFOSA (S)	80	%.	10-150		1	11/22/24 13:25	11/25/24 17:54		
d7-NMeFOSE (S)	78	%.	10-150		1	11/22/24 13:25	11/25/24 17:54		
d9-NEtFOSE (S)	71	%.	10-150		1	11/22/24 13:25	11/25/24 17:54		

Sample: MWW1-04_GW-110824		Lab ID: 10715185006		Collected: 11/08/24 13:20		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 126.495 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	3.7	0.80	1	11/22/24 13:25	11/25/24 18:01	763051-92-9	
4:2 FTS	ND	ng/L	3.7	0.72	1	11/22/24 13:25	11/25/24 18:01	757124-72-4	
6:2 FTS	ND	ng/L	3.8	1.1	1	11/22/24 13:25	11/25/24 18:01	27619-97-2	
8:2 FTS	ND	ng/L	3.8	1.6	1	11/22/24 13:25	11/25/24 18:01	39108-34-4	
9CI-PF3ONS	ND	ng/L	3.7	0.70	1	11/22/24 13:25	11/25/24 18:01	756426-58-1	
ADONA	ND	ng/L	3.7	0.63	1	11/22/24 13:25	11/25/24 18:01	919005-14-4	
HFPO-DA	ND	ng/L	4.0	0.50	1	11/22/24 13:25	11/25/24 18:01	13252-13-6	
NEtFOSAA	11.4	ng/L	4.0	1.1	1	11/22/24 13:25	11/25/24 18:01	2991-50-6	
NMeFOSAA	ND	ng/L	4.0	1.5	1	11/22/24 13:25	11/25/24 18:01	2355-31-9	
PFBS	ND	ng/L	3.5	0.40	1	11/22/24 13:25	11/25/24 18:01	375-73-5	
PFDA	ND	ng/L	4.0	0.49	1	11/22/24 13:25	11/25/24 18:01	335-76-2	
PFHxA	ND	ng/L	4.0	0.75	1	11/22/24 13:25	11/25/24 18:01	307-24-4	
PFBA	ND	ng/L	4.0	0.55	1	11/22/24 13:25	11/25/24 18:01	375-22-4	
PFDS	ND	ng/L	3.8	1.1	1	11/22/24 13:25	11/25/24 18:01	335-77-3	
PFHpS	ND	ng/L	3.8	1.2	1	11/22/24 13:25	11/25/24 18:01	375-92-8	
PFNS	ND	ng/L	3.8	0.94	1	11/22/24 13:25	11/25/24 18:01	68259-12-1	
PFOSA	ND	ng/L	4.0	0.79	1	11/22/24 13:25	11/25/24 18:01	754-91-6	
PFPeA	ND	ng/L	4.0	0.36	1	11/22/24 13:25	11/25/24 18:01	2706-90-3	
PFPeS	ND	ng/L	3.7	0.51	1	11/22/24 13:25	11/25/24 18:01	2706-91-4	
PFDoA	ND	ng/L	4.0	0.85	1	11/22/24 13:25	11/25/24 18:01	307-55-1	
PFHpA	ND	ng/L	4.0	0.46	1	11/22/24 13:25	11/25/24 18:01	375-85-9	
PFHxS	6.7	ng/L	3.6	0.46	1	11/22/24 13:25	11/25/24 18:01	355-46-4	
PFNA	ND	ng/L	4.0	0.41	1	11/22/24 13:25	11/25/24 18:01	375-95-1	
PFOS	98.6	ng/L	3.7	1.0	1	11/22/24 13:25	11/25/24 18:01	1763-23-1	
PFOA	6.5	ng/L	4.0	0.53	1	11/22/24 13:25	11/25/24 18:01	335-67-1	
PFTeDA	ND	ng/L	4.0	0.71	1	11/22/24 13:25	11/25/24 18:01	376-06-7	
PFTTrDA	ND	ng/L	4.0	0.56	1	11/22/24 13:25	11/25/24 18:01	72629-94-8	
PFUnA	ND	ng/L	4.0	1.3	1	11/22/24 13:25	11/25/24 18:01	2058-94-8	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MWW1-04_GW-110824 Lab ID: 10715185006 Collected: 11/08/24 13:20 Received: 11/11/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 126.495 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

Surrogates

13C26:2FTS (S)	254	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		S0
13C28:2FTS (S)	298	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		S0
13C24:2FTS (S)	195	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		S0
13C2-PFDoA (S)	116	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C2PFHxDA (S)	106	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C2-PFTA (S)	108	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C3HFPO-DA (S)	64	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C3-PFBS (S)	79	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C3-PFHxS (S)	83	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C4-PFBA (S)	40	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		S0
13C4-PFHpA (S)	83	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C5-PFHxA (S)	73	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C5-PFPeA (S)	63	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C6-PFDA (S)	98	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C7-PFUdA (S)	109	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C8-PFOA (S)	86	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C8-PFOS (S)	100	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C8-PFOSA (S)	82	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
13C9-PFNA (S)	86	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
d3-MeFOSAA (S)	87	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
d3-NMeFOSA (S)	73	%.	10-150		1	11/22/24 13:25	11/25/24 18:01		
d5-EtFOSAA (S)	99	%.	50-150		1	11/22/24 13:25	11/25/24 18:01		
d5-NEtFOSA (S)	68	%.	10-150		1	11/22/24 13:25	11/25/24 18:01		
d7-NMeFOSE (S)	72	%.	10-150		1	11/22/24 13:25	11/25/24 18:01		
d9-NEtFOSE (S)	70	%.	10-150		1	11/22/24 13:25	11/25/24 18:01		

Sample: MW0S-02_GW-110824 Lab ID: 10715185007 Collected: 11/08/24 14:40 Received: 11/11/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 246.145 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

11CI-PF3OUdS	ND	ng/L	1.9	0.41	1	11/22/24 13:25	11/25/24 18:08	763051-92-9	
4:2 FTS	ND	ng/L	1.9	0.37	1	11/22/24 13:25	11/25/24 18:08	757124-72-4	
6:2 FTS	ND	ng/L	1.9	0.58	1	11/22/24 13:25	11/25/24 18:08	27619-97-2	
8:2 FTS	ND	ng/L	2.0	0.80	1	11/22/24 13:25	11/25/24 18:08	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.9	0.36	1	11/22/24 13:25	11/25/24 18:08	756426-58-1	
ADONA	ND	ng/L	1.9	0.33	1	11/22/24 13:25	11/25/24 18:08	919005-14-4	
HFPO-DA	ND	ng/L	2.0	0.26	1	11/22/24 13:25	11/25/24 18:08	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	0.58	1	11/22/24 13:25	11/25/24 18:08	2991-50-6	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MW0S-02_GW-110824 Lab ID: 10715185007 Collected: 11/08/24 14:40 Received: 11/11/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 246.145 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
NMeFOSAA	ND	ng/L	2.0	0.79	1	11/22/24 13:25	11/25/24 18:08	2355-31-9		
PFBS	4.7	ng/L	1.8	0.21	1	11/22/24 13:25	11/25/24 18:08	375-73-5		
PFDA	ND	ng/L	2.0	0.25	1	11/22/24 13:25	11/25/24 18:08	335-76-2		
PFHxA	ND	ng/L	2.0	0.38	1	11/22/24 13:25	11/25/24 18:08	307-24-4		
PFBA	6.1	ng/L	2.0	0.28	1	11/22/24 13:25	11/25/24 18:08	375-22-4		
PFDS	ND	ng/L	2.0	0.58	1	11/22/24 13:25	11/25/24 18:08	335-77-3		
PFHpS	ND	ng/L	1.9	0.64	1	11/22/24 13:25	11/25/24 18:08	375-92-8		
PFNS	ND	ng/L	2.0	0.48	1	11/22/24 13:25	11/25/24 18:08	68259-12-1		
PFOSA	ND	ng/L	2.0	0.40	1	11/22/24 13:25	11/25/24 18:08	754-91-6		
PFPeA	ND	ng/L	2.0	0.19	1	11/22/24 13:25	11/25/24 18:08	2706-90-3		
PFPeS	ND	ng/L	1.9	0.26	1	11/22/24 13:25	11/25/24 18:08	2706-91-4		
PFDoA	ND	ng/L	2.0	0.44	1	11/22/24 13:25	11/25/24 18:08	307-55-1		
PFHpA	ND	ng/L	2.0	0.24	1	11/22/24 13:25	11/25/24 18:08	375-85-9		
PFHxS	6.3	ng/L	1.8	0.24	1	11/22/24 13:25	11/25/24 18:08	355-46-4		
PFNA	ND	ng/L	2.0	0.21	1	11/22/24 13:25	11/25/24 18:08	375-95-1		
PFOS	7.8	ng/L	1.9	0.52	1	11/22/24 13:25	11/25/24 18:08	1763-23-1		
PFOA	5.1	ng/L	2.0	0.27	1	11/22/24 13:25	11/25/24 18:08	335-67-1		
PFTeDA	ND	ng/L	2.0	0.37	1	11/22/24 13:25	11/25/24 18:08	376-06-7		
PFTrDA	ND	ng/L	2.0	0.29	1	11/22/24 13:25	11/25/24 18:08	72629-94-8		
PFUnA	ND	ng/L	2.0	0.65	1	11/22/24 13:25	11/25/24 18:08	2058-94-8		
Surrogates										
13C26:2FTS (S)	167	%	50-150		1	11/22/24 13:25	11/25/24 18:08			S0
13C28:2FTS (S)	155	%	50-150		1	11/22/24 13:25	11/25/24 18:08			S0
13C24:2FTS (S)	120	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C2-PFDoA (S)	122	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C2PFHxDA (S)	106	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C2-PFTA (S)	103	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C3HFPO-DA (S)	92	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C3-PFBS (S)	90	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C3-PFHxS (S)	102	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C4-PFBA (S)	71	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C4-PFHpA (S)	107	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C5-PFHxA (S)	98	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C5-PFPeA (S)	85	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C6-PFDA (S)	121	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C7-PFUdA (S)	122	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C8-PFOA (S)	110	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C8-PFOS (S)	118	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C8-PFOSA (S)	106	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
13C9-PFNA (S)	116	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
d3-MeFOSAA (S)	114	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
d3-NMeFOSA (S)	82	%	10-150		1	11/22/24 13:25	11/25/24 18:08			
d5-EtFOSAA (S)	111	%	50-150		1	11/22/24 13:25	11/25/24 18:08			
d5-NEtFOSA (S)	82	%	10-150		1	11/22/24 13:25	11/25/24 18:08			

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: MW0S-02_GW-110824		Lab ID: 10715185007		Collected: 11/08/24 14:40		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 246.145 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
d7-NMeFOSE (S)	86	%.	10-150		1	11/22/24 13:25	11/25/24 18:08		
d9-NEtFOSE (S)	85	%.	10-150		1	11/22/24 13:25	11/25/24 18:08		

Sample: EB-03_110824		Lab ID: 10715185008		Collected: 11/08/24 15:25		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 249.795 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	1.9	0.41	1	11/22/24 13:25	11/25/24 18:30	763051-92-9	
4:2 FTS	ND	ng/L	1.9	0.36	1	11/22/24 13:25	11/25/24 18:30	757124-72-4	
6:2 FTS	ND	ng/L	1.9	0.57	1	11/22/24 13:25	11/25/24 18:30	27619-97-2	
8:2 FTS	ND	ng/L	1.9	0.79	1	11/22/24 13:25	11/25/24 18:30	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.9	0.35	1	11/22/24 13:25	11/25/24 18:30	756426-58-1	
ADONA	ND	ng/L	1.9	0.32	1	11/22/24 13:25	11/25/24 18:30	919005-14-4	
HFPO-DA	ND	ng/L	2.0	0.25	1	11/22/24 13:25	11/25/24 18:30	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	0.57	1	11/22/24 13:25	11/25/24 18:30	2991-50-6	
NMeFOSAA	ND	ng/L	2.0	0.78	1	11/22/24 13:25	11/25/24 18:30	2355-31-9	
PFBS	ND	ng/L	1.8	0.20	1	11/22/24 13:25	11/25/24 18:30	375-73-5	
PFDA	ND	ng/L	2.0	0.25	1	11/22/24 13:25	11/25/24 18:30	335-76-2	
PFHxA	ND	ng/L	2.0	0.38	1	11/22/24 13:25	11/25/24 18:30	307-24-4	
PFBA	ND	ng/L	2.0	0.28	1	11/22/24 13:25	11/25/24 18:30	375-22-4	
PFDS	ND	ng/L	1.9	0.57	1	11/22/24 13:25	11/25/24 18:30	335-77-3	
PFHpS	ND	ng/L	1.9	0.63	1	11/22/24 13:25	11/25/24 18:30	375-92-8	
PFNS	ND	ng/L	1.9	0.47	1	11/22/24 13:25	11/25/24 18:30	68259-12-1	
PFOSA	ND	ng/L	2.0	0.40	1	11/22/24 13:25	11/25/24 18:30	754-91-6	
PFPeA	ND	ng/L	2.0	0.18	1	11/22/24 13:25	11/25/24 18:30	2706-90-3	
PFPeS	ND	ng/L	1.9	0.26	1	11/22/24 13:25	11/25/24 18:30	2706-91-4	
PFDaA	ND	ng/L	2.0	0.43	1	11/22/24 13:25	11/25/24 18:30	307-55-1	
PFHpA	ND	ng/L	2.0	0.24	1	11/22/24 13:25	11/25/24 18:30	375-85-9	
PFHxS	ND	ng/L	1.8	0.23	1	11/22/24 13:25	11/25/24 18:30	355-46-4	
PFNA	ND	ng/L	2.0	0.21	1	11/22/24 13:25	11/25/24 18:30	375-95-1	
PFOS	ND	ng/L	1.9	0.51	1	11/22/24 13:25	11/25/24 18:30	1763-23-1	
PFOA	ND	ng/L	2.0	0.27	1	11/22/24 13:25	11/25/24 18:30	335-67-1	
PFTeDA	ND	ng/L	2.0	0.36	1	11/22/24 13:25	11/25/24 18:30	376-06-7	
PFTTrDA	ND	ng/L	2.0	0.28	1	11/22/24 13:25	11/25/24 18:30	72629-94-8	
PFUnA	ND	ng/L	2.0	0.64	1	11/22/24 13:25	11/25/24 18:30	2058-94-8	
Surrogates									
13C26:2FTS (S)	73	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C28:2FTS (S)	102	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: EB-03_110824		Lab ID: 10715185008		Collected: 11/08/24 15:25		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 249.795 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C24:2FTS (S)	68	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C2-PFDoA (S)	126	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C2PFHxDA (S)	95	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C2-PFTA (S)	114	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C3HFPO-DA (S)	124	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C3-PFBS (S)	117	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C3-PFHxS (S)	112	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C4-PFBA (S)	118	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C4-PFHpA (S)	115	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C5-PFHxA (S)	114	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C5-PFPeA (S)	129	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C6-PFDA (S)	124	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C7-PFUdA (S)	123	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C8-PFOA (S)	120	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C8-PFOS (S)	125	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C8-PFOSA (S)	113	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
13C9-PFNA (S)	121	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
d3-MeFOSAA (S)	106	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
d3-NMeFOSA (S)	91	%.	10-150		1	11/22/24 13:25	11/25/24 18:30		
d5-EtFOSAA (S)	109	%.	50-150		1	11/22/24 13:25	11/25/24 18:30		
d5-NEtFOSA (S)	87	%.	10-150		1	11/22/24 13:25	11/25/24 18:30		
d7-NMeFOSE (S)	101	%.	10-150		1	11/22/24 13:25	11/25/24 18:30		
d9-NEtFOSE (S)	99	%.	10-150		1	11/22/24 13:25	11/25/24 18:30		

Sample: DUP-02_110824		Lab ID: 10715185009		Collected: 11/08/24 15:25		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 128.32 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	3.7	0.79	1	11/22/24 13:25	11/25/24 18:52	763051-92-9	
4:2 FTS	ND	ng/L	3.6	0.71	1	11/22/24 13:25	11/25/24 18:52	757124-72-4	
6:2 FTS	30.3	ng/L	3.7	1.1	1	11/22/24 13:25	11/25/24 18:52	27619-97-2	
8:2 FTS	ND	ng/L	3.8	1.5	1	11/22/24 13:25	11/25/24 18:52	39108-34-4	
9CI-PF3ONS	ND	ng/L	3.6	0.69	1	11/22/24 13:25	11/25/24 18:52	756426-58-1	
ADONA	ND	ng/L	3.7	0.62	1	11/22/24 13:25	11/25/24 18:52	919005-14-4	
HFPO-DA	ND	ng/L	3.9	0.49	1	11/22/24 13:25	11/25/24 18:52	13252-13-6	
NEtFOSAA	ND	ng/L	3.9	1.1	1	11/22/24 13:25	11/25/24 18:52	2991-50-6	
NMeFOSAA	ND	ng/L	3.9	1.5	1	11/22/24 13:25	11/25/24 18:52	2355-31-9	
PFBS	19.0	ng/L	3.4	0.40	1	11/22/24 13:25	11/25/24 18:52	375-73-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Sample: DUP-02_110824		Lab ID: 10715185009		Collected: 11/08/24 15:25		Received: 11/11/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 128.32 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
PFDA	ND	ng/L	3.9	0.49	1	11/22/24 13:25	11/25/24 18:52	335-76-2	
PFHxA	17.6	ng/L	3.9	0.74	1	11/22/24 13:25	11/25/24 18:52	307-24-4	
PFBA	ND	ng/L	3.9	0.55	1	11/22/24 13:25	11/25/24 18:52	375-22-4	
PFDS	ND	ng/L	3.8	1.1	1	11/22/24 13:25	11/25/24 18:52	335-77-3	
PFHpS	ND	ng/L	3.7	1.2	1	11/22/24 13:25	11/25/24 18:52	375-92-8	
PFNS	ND	ng/L	3.7	0.92	1	11/22/24 13:25	11/25/24 18:52	68259-12-1	
PFOSA	ND	ng/L	3.9	0.78	1	11/22/24 13:25	11/25/24 18:52	754-91-6	
PFPeA	14.8	ng/L	3.9	0.36	1	11/22/24 13:25	11/25/24 18:52	2706-90-3	
PFPeS	ND	ng/L	3.7	0.50	1	11/22/24 13:25	11/25/24 18:52	2706-91-4	
PFDoA	ND	ng/L	3.9	0.84	1	11/22/24 13:25	11/25/24 18:52	307-55-1	
PFHpA	15.6	ng/L	3.9	0.46	1	11/22/24 13:25	11/25/24 18:52	375-85-9	
PFHxS	14.3	ng/L	3.5	0.46	1	11/22/24 13:25	11/25/24 18:52	355-46-4	
PFNA	ND	ng/L	3.9	0.41	1	11/22/24 13:25	11/25/24 18:52	375-95-1	
PFOS	5.2	ng/L	3.6	0.99	1	11/22/24 13:25	11/25/24 18:52	1763-23-1	
PFOA	39.6	ng/L	3.9	0.52	1	11/22/24 13:25	11/25/24 18:52	335-67-1	
PFTeDA	ND	ng/L	3.9	0.70	1	11/22/24 13:25	11/25/24 18:52	376-06-7	
PFTrDA	ND	ng/L	3.9	0.55	1	11/22/24 13:25	11/25/24 18:52	72629-94-8	
PFUnA	ND	ng/L	3.9	1.2	1	11/22/24 13:25	11/25/24 18:52	2058-94-8	
Surrogates									
13C26:2FTS (S)	219	%	50-150		1	11/22/24 13:25	11/25/24 18:52		S0
13C28:2FTS (S)	230	%	50-150		1	11/22/24 13:25	11/25/24 18:52		S0
13C24:2FTS (S)	181	%	50-150		1	11/22/24 13:25	11/25/24 18:52		S0
13C2-PFDoA (S)	99	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C2PFHxDA (S)	84	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C2-PFTA (S)	91	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C3HFPO-DA (S)	56	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C3-PFBS (S)	66	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C3-PFHxS (S)	75	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C4-PFBA (S)	42	%	50-150		1	11/22/24 13:25	11/25/24 18:52		S0
13C4-PFHpA (S)	69	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C5-PFHxA (S)	62	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C5-PFPeA (S)	55	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C6-PFDA (S)	90	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C7-PFUdA (S)	99	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C8-PFOA (S)	70	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C8-PFOS (S)	89	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C8-PFOSA (S)	82	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
13C9-PFNA (S)	71	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
d3-MeFOSAA (S)	76	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
d3-NMeFOSA (S)	66	%	10-150		1	11/22/24 13:25	11/25/24 18:52		
d5-EtFOSAA (S)	92	%	50-150		1	11/22/24 13:25	11/25/24 18:52		
d5-NEtFOSA (S)	68	%	10-150		1	11/22/24 13:25	11/25/24 18:52		
d7-NMeFOSE (S)	69	%	10-150		1	11/22/24 13:25	11/25/24 18:52		
d9-NEtFOSE (S)	72	%	10-150		1	11/22/24 13:25	11/25/24 18:52		

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

QC Batch:	980883	Analysis Method:	ENV-SOP-MIN4-0178
QC Batch Method:	ENV-SOP-MIN4-0178	Analysis Description:	PFAS Compounds, Water
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10715185001, 10715185002, 10715185003, 10715185004, 10715185005, 10715185006, 10715185007, 10715185008, 10715185009

METHOD BLANK: 5124665

Matrix: Water

Associated Lab Samples: 10715185001, 10715185002, 10715185003, 10715185004, 10715185005, 10715185006, 10715185007, 10715185008, 10715185009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	ND	1.8	0.40	11/25/24 17:03	
4:2 FTS	ng/L	ND	1.8	0.35	11/25/24 17:03	
6:2 FTS	ng/L	ND	1.8	0.56	11/25/24 17:03	
8:2 FTS	ng/L	ND	1.9	0.77	11/25/24 17:03	
9CI-PF3ONS	ng/L	ND	1.8	0.34	11/25/24 17:03	
ADONA	ng/L	ND	1.8	0.31	11/25/24 17:03	
HFPO-DA	ng/L	ND	1.9	0.25	11/25/24 17:03	
NEtFOSAA	ng/L	ND	1.9	0.55	11/25/24 17:03	
NMeFOSAA	ng/L	ND	1.9	0.76	11/25/24 17:03	
PFBA	ng/L	ND	1.9	0.27	11/25/24 17:03	
PFBS	ng/L	ND	1.7	0.20	11/25/24 17:03	
PFDA	ng/L	ND	1.9	0.24	11/25/24 17:03	
PFDoA	ng/L	ND	1.9	0.42	11/25/24 17:03	
PFDS	ng/L	ND	1.9	0.55	11/25/24 17:03	
PFHpA	ng/L	ND	1.9	0.23	11/25/24 17:03	
PFHpS	ng/L	ND	1.8	0.61	11/25/24 17:03	
PFHxA	ng/L	ND	1.9	0.37	11/25/24 17:03	
PFHxS	ng/L	ND	1.8	0.23	11/25/24 17:03	
PFNA	ng/L	ND	1.9	0.20	11/25/24 17:03	
PFNS	ng/L	ND	1.9	0.46	11/25/24 17:03	
PFOA	ng/L	ND	1.9	0.26	11/25/24 17:03	
PFOS	ng/L	ND	1.8	0.50	11/25/24 17:03	
PFOSA	ng/L	ND	1.9	0.39	11/25/24 17:03	
PFPeA	ng/L	ND	1.9	0.18	11/25/24 17:03	
PFPeS	ng/L	ND	1.8	0.25	11/25/24 17:03	
PFTeDA	ng/L	ND	1.9	0.35	11/25/24 17:03	
PFTrDA	ng/L	ND	1.9	0.27	11/25/24 17:03	
PFUnA	ng/L	ND	1.9	0.62	11/25/24 17:03	
13C2-PFDoA (S)	%	105	50-150		11/25/24 17:03	
13C2-PFTA (S)	%	96	50-150		11/25/24 17:03	
13C24:2FTS (S)	%	80	50-150		11/25/24 17:03	
13C26:2FTS (S)	%	71	50-150		11/25/24 17:03	
13C28:2FTS (S)	%	86	50-150		11/25/24 17:03	
13C2PFHxDA (S)	%	79	50-150		11/25/24 17:03	
13C3-PFBS (S)	%	101	50-150		11/25/24 17:03	
13C3-PFHxS (S)	%	97	50-150		11/25/24 17:03	
13C3HFPO-DA (S)	%	106	50-150		11/25/24 17:03	
13C4-PFBA (S)	%	103	50-150		11/25/24 17:03	
13C4-PFHpA (S)	%	101	50-150		11/25/24 17:03	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

METHOD BLANK: 5124665

Matrix: Water

Associated Lab Samples: 10715185001, 10715185002, 10715185003, 10715185004, 10715185005, 10715185006, 10715185007, 10715185008, 10715185009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
13C5-PFHxA (S)	%.	99	50-150		11/25/24 17:03	
13C5-PFPeA (S)	%.	115	50-150		11/25/24 17:03	
13C6-PFDA (S)	%.	109	50-150		11/25/24 17:03	
13C7-PFUDa (S)	%.	109	50-150		11/25/24 17:03	
13C8-PFOA (S)	%.	108	50-150		11/25/24 17:03	
13C8-PFOS (S)	%.	111	50-150		11/25/24 17:03	
13C8-PFOSA (S)	%.	94	50-150		11/25/24 17:03	
13C9-PFNA (S)	%.	106	50-150		11/25/24 17:03	
d3-MeFOSAA (S)	%.	103	50-150		11/25/24 17:03	
d3-NMeFOSA (S)	%.	72	10-150		11/25/24 17:03	
d5-EtFOSAA (S)	%.	99	50-150		11/25/24 17:03	
d5-NEtFOSA (S)	%.	73	10-150		11/25/24 17:03	
d7-NMeFOSE (S)	%.	90	10-150		11/25/24 17:03	
d9-NEtFOSE (S)	%.	92	10-150		11/25/24 17:03	

LABORATORY CONTROL SAMPLE & LCSD: 5124666

5124667

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11CI-PF3OUdS	ng/L	3.7	3.2	3.7	88	95	70-140	14	30	
4:2 FTS	ng/L	3.6	3.7	3.8	102	99	63-143	3	30	
6:2 FTS	ng/L	3.7	3.6	4.3	99	109	64-140	16	30	
8:2 FTS	ng/L	3.7	4.0	4.2	106	106	67-138	6	30	
9CI-PF3ONS	ng/L	3.6	3.6	4.0	98	103	70-140	11	30	
ADONA	ng/L	3.7	3.4	3.7	93	96	70-140	9	30	
HFPO-DA	ng/L	3.9	3.9	4.5	100	108	70-140	14	30	
NEtFOSAA	ng/L	3.9	3.6	4.2	93	103	61-135	16	30	
NMeFOSAA	ng/L	3.9	3.7	4.0	96	97	65-136	7	30	
PFBA	ng/L	3.9	3.7	4.0	95	98	73-129	9	30	
PFBS	ng/L	3.4	3.6	3.8	104	105	72-130	8	30	
PFDA	ng/L	3.9	3.7	3.9	95	96	71-129	7	30	
PFDoA	ng/L	3.9	3.8	3.9	98	93	72-134	1	30	
PFDS	ng/L	3.7	3.3	4.0	89	100	53-142	18	30	
PFHpA	ng/L	3.9	3.6	4.1	92	100	72-130	14	30	
PFHpS	ng/L	3.7	3.8	4.2	102	108	69-134	11	30	
PFHxA	ng/L	3.9	3.8	4.3	99	104	72-129	11	30	
PFHxS	ng/L	3.6	3.3	3.7	93	98	68-131	12	30	
PFNA	ng/L	3.9	4.0	4.3	103	104	69-130	7	30	
PFNS	ng/L	3.7	3.6	3.6	98	91	69-127	1	30	
PFOA	ng/L	3.9	3.8	4.0	99	97	71-133	5	30	
PFOS	ng/L	3.6	3.3	3.8	92	98	65-140	13	30	
PFOSA	ng/L	3.9	3.8	4.2	97	102	67-137	11	30	
PFPeA	ng/L	3.9	3.9	4.3	100	104	72-129	10	30	
PFPeS	ng/L	3.6	3.4	3.9	93	100	71-127	14	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

LABORATORY CONTROL SAMPLE & LCSD: 5124666			5124667							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
PFTeDA	ng/L	3.9	3.9	4.4	102	106	71-132	10	30	
PFTrDA	ng/L	3.9	3.5	4.1	90	98	65-144	15	30	
PFUnA	ng/L	3.9	3.7	4.0	95	97	69-133	7	30	
13C2-PFDoA (S)	%				136	115	50-150			
13C2-PFTA (S)	%				123	106	50-150			
13C24:2FTS (S)	%				101	87	50-150			
13C26:2FTS (S)	%				100	86	50-150			
13C28:2FTS (S)	%				108	93	50-150			
13C2PFHxDA (S)	%				109	93	50-150			
13C3-PFBS (S)	%				125	108	50-150			
13C3-PFHxS (S)	%				119	103	50-150			
13C3HFPO-DA (S)	%				134	112	50-150			
13C4-PFBA (S)	%				127	109	50-150			
13C4-PFHpA (S)	%				125	106	50-150			
13C5-PFHxA (S)	%				123	105	50-150			
13C5-PFPeA (S)	%				142	121	50-150			
13C6-PFDA (S)	%				136	120	50-150			
13C7-PFUDa (S)	%				135	118	50-150			
13C8-PFOA (S)	%				129	113	50-150			
13C8-PFOS (S)	%				134	116	50-150			
13C8-PFOSA (S)	%				122	102	50-150			
13C9-PFNA (S)	%				133	112	50-150			
d3-MeFOSAA (S)	%				126	107	50-150			
d3-NMeFOSA (S)	%				88	70	10-150			
d5-EtFOSAA (S)	%				128	105	50-150			
d5-NEtFOSA (S)	%				91	64	10-150			
d7-NMeFOSE (S)	%				114	94	10-150			
d9-NEtFOSE (S)	%				111	94	10-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5124668			5124669									
Parameter	Units	10715185007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
11CI-PF3OUdS	ng/L	ND	3.9	3.9	3.4	3.4	86	87	70-130	1	30	
4:2 FTS	ng/L	ND	3.9	3.8	3.6	3.4	93	89	70-130	7	30	
6:2 FTS	ng/L	ND	4	3.9	3.8	3.6	92	88	70-130	6	30	
8:2 FTS	ng/L	ND	4	3.9	3.8	3.2	95	82	70-130	17	30	
9CI-PF3ONS	ng/L	ND	3.9	3.8	3.5	3.7	91	97	70-130	5	30	
ADONA	ng/L	ND	3.9	3.9	3.4	3.2	87	84	70-130	5	30	
HFPO-DA	ng/L	ND	4.2	4.1	4.0	4.0	96	99	70-130	1	30	
NEtFOSAA	ng/L	ND	4.2	4.1	3.8	3.9	91	96	70-130	4	30	
NMeFOSAA	ng/L	ND	4.2	4.1	4.1	3.9	99	96	70-130	5	30	
PFBA	ng/L	6.1	4.2	4.1	9.9	9.8	92	92	70-130	1	30	
PFBS	ng/L	4.7	3.7	3.6	7.9	7.8	85	84	70-130	1	30	
PFDA	ng/L	ND	4.2	4.1	3.6	3.8	85	93	70-130	7	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5124668 5124669												
Parameter	Units	10715185007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PFDaA	ng/L	ND	4.2	4.1	3.8	3.6	90	89	70-130	3	30	
PFDS	ng/L	ND	4	4	3.7	3.0	93	77	70-130	21	30	
PFHpA	ng/L	ND	4.2	4.1	5.1	4.6	91	82	70-130	9	30	
PFHpS	ng/L	ND	4	3.9	4.8	4.7	102	102	70-130	2	30	
PFHxA	ng/L	ND	4.2	4.1	5.2	4.8	91	83	70-130	8	30	
PFHxS	ng/L	6.3	3.8	3.8	10.6	9.7	112	89	70-130	9	30	
PFNA	ng/L	ND	4.2	4.1	4.2	4.0	100	97	70-130	4	30	
PFNS	ng/L	ND	4	3.9	4.2	3.5	106	89	70-130	18	30	
PFOA	ng/L	5.1	4.2	4.1	9.2	8.7	98	87	70-130	6	30	
PFOS	ng/L	7.8	3.9	3.8	11.0	11.1	81	85	70-130	1	30	
PFOSA	ng/L	ND	4.2	4.1	3.9	3.7	93	91	70-130	4	30	
PFPeA	ng/L	ND	4.2	4.1	5.0	4.8	98	95	70-130	4	30	
PFPeS	ng/L	ND	3.9	3.9	5.5	5.5	106	107	70-130	1	30	
PFTeDA	ng/L	ND	4.2	4.1	4.0	3.8	96	93	70-130	5	30	
PFTrDA	ng/L	ND	4.2	4.1	3.7	3.7	89	91	70-130	1	30	
PFUnA	ng/L	ND	4.2	4.1	3.8	3.6	92	87	70-130	6	30	
13C2-PFDaA (S)	%						98	125	50-150			
13C2-PFTA (S)	%						90	121	50-150			
13C24:2FTS (S)	%						104	145	50-150			
13C26:2FTS (S)	%						141	199	50-150			S0
13C28:2FTS (S)	%						118	195	50-150			S0
13C2PFHxDA (S)	%						83	114	50-150			
13C3-PFBS (S)	%						83	101	50-150			
13C3-PFHxS (S)	%						89	112	50-150			
13C3HFPO-DA (S)	%						85	94	50-150			
13C4-PFBA (S)	%						67	77	50-150			
13C4-PFHpA (S)	%						96	120	50-150			
13C5-PFHxA (S)	%						90	111	50-150			
13C5-PFPeA (S)	%						78	93	50-150			
13C6-PFDA (S)	%						112	132	50-150			
13C7-PFUDa (S)	%						108	137	50-150			
13C8-PFOA (S)	%						100	123	50-150			
13C8-PFOS (S)	%						104	126	50-150			
13C8-PFOSA (S)	%						84	111	50-150			
13C9-PFNA (S)	%						104	128	50-150			
d3-MeFOSAA (S)	%						95	124	50-150			
d3-NMeFOSA (S)	%						58	83	10-150			
d5-EtFOSAA (S)	%						93	130	50-150			
d5-NEtFOSA (S)	%						64	81	10-150			
d7-NMeFOSE (S)	%						78	97	10-150			
d9-NEtFOSE (S)	%						75	94	10-150			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

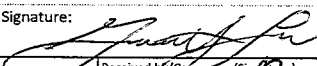
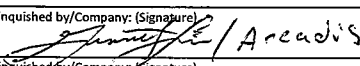
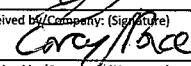
Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715185

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10715185001	MW-01-17_GW-110724	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185002	EB-02_110724	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185003	MWW1-02_GW-110724	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185004	SEEP-VAULT_GW-110724	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185005	MWM30-01_GW-110824	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185006	MWW1-04_GW-110824	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185007	MW0S-02_GW-110824	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185008	EB-03_110824	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738
10715185009	DUP-02_110824	ENV-SOP-MIN4-0178	980883	ENV-SOP-MIN4-0178	981738

REPORT OF LABORATORY ANALYSIS

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Pace® Location Requested (City/State): Pace Analytical Minnesota 1700 Elm Street, Suite 200 Minneapolis, MN 55414		CHAIN-OF-CUSTODY Analytical Request Document Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields		WO# : 10715185  10715185					
Company Name: Arcadis-OH		Contact/Report To: Lexi Nickerson							
Street Address: 7575 Huntington Park Dr 130 Columbus, OH 43235		Phone #: 614-985-9100							
		E-Mail: alexis.nickerson@arcadis.com							
		Cc E-Mail:							
Customer Project #: 30214041.00005		Invoice To:		Specify Container Size **					
Project Name: Pontiac Michigan PFAS		Invoice E-Mail:		3 3					
Site Collection Info/Facility ID (as applicable):		Purchase Order # (if applicable):		Identify Container Preservative Type***					
		Quote #:		1 1					
Time Zone Collected: [] AK [] PT [] MT [] CT [X] ET		County / State origin of sample(s): Michigan / Oakland		Analysis Requested					
Data Deliverables:		Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [] Yes [] No		Equipment Blank - PFAS ID NPW PFAS ID NPW					
[X] Level II [] Level III [] Level IV		Rush (Pre-approval required):							
[] EQUIS		[] Same Day [] 1 Day [] 2 Day [] 3 Day [] Other							
[] Other		DW PWSID # or WW Permit # as applicable:							
		Date Results Requested:		Field Filtered (if applicable): [] Yes [] No					
		Analysis:							
* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)									
Customer Sample ID		Matrix *	Comp / Grab	Composite Start		Collected or Composite End		#	Res. Chlorine
				Date	Time	Date	Time	Cont.	Results Units
MW-01-17-GW-110724		GW	Grab	-	-	11/7/24	1220	2	-
EB-02-110724		GW	Grab	-	-	11/7/24	1237	2	-
MW-01-02-GW-110724		GW	Grab	-	-	11/7/24	1430	2	-
SEEP-VAULT-GW-110724		GW	Grab	-	-	11/7/24	1610	2	-
MWM30-01-GW-110824		GW	Grab	-	-	11/8/24	1105	2	-
MWW1-04-GW-110824		GW	Grab	-	-	11/8/24	1320	2	-
MWOS-02-GW-110824		GW	Grab	-	-	11/8/24	1440	6	-
EB-03-110824		GW	Grab	-	-	11/8/24	1525	2	-
DUP-02-110824		GW	Grab	-	-	11/8/24	-	2	-
Additional Instructions from Pace®:				Collected By: Garrett L. Lins		Customer Remarks / Special Conditions / Possible Hazards:			
				Signature: 		# Coolers: 1 Thermometer ID: TN Correction Factor (°C): 0.0 Obs. Temp. (°C): 0.7 Corrected Temp. (°C): 0.7 On Ice: Y			
Relinquished by/Company: (Signature)  / Arcadis		Date/Time: 11/8/24 17:00		Received by/Company: (Signature)  Corey Pace		Date/Time: 11/11/24 8:50		Tracking Number:	
Relinquished by/Company: (Signature)		Date/Time:		Received by/Company: (Signature)		Date/Time:		Delivered by: [] In-Person [] Courier	
Relinquished by/Company: (Signature)		Date/Time:		Received by/Company: (Signature)		Date/Time:		[] FedEx [] UPS [] Other	
Relinquished by/Company: (Signature)		Date/Time:		Received by/Company: (Signature)		Date/Time:		Page: 3 of 3	

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: Arcadis - OH PROJECT #: MO#: 10715185 PM: CT1 Due Date: 12/04/24 CLIENT: Arcadis-OH

CUSTOMER: ☒ Client ☐ Speedee ☐ UPS ☐ FedEx ☐ Pace

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☒ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710)

Packing Material: ☒ Bubble Bags ☐ Bubble Wrap ☐ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet ☐ Melted ☐ None

Custody Seal on Cooler/Box Present: ☒ YES ☐ NO Seals Intact: ☒ YES ☐ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A

Were All Container Temps taken: ☐ YES ☐ NO ☒ N/A

Average Corrected Temp (no Temp Blank Only): °C

Cooler Temp Read w/Temp Blank: 8.7 °C

Cooler Temp Corrected w/Temp Blank: 8.7 °C

NOTE: Temp should be above freezing to 6°C.

USDA Regulated Soil: ☒ N/A - Water Sample/Other (describe):

Did Samples Originate in West Virginia: ☐ YES ☒ NO

Correction Factor: 0.0

Initials & Date of Person Examining Contents: CRL 11/11/24

Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☒ NO

NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one): ☐ DULUTH ☒ MINNEAPOLIS ☐ VIRGINIA

Chain of Custody Present and Filled Out? ☒ YES ☐ NO

Chain of Custody Relinquished? ☒ YES ☐ NO

Sampler Name and/or Signature on COC? ☒ YES ☐ NO

Samples Arrived within Hold Time? ☒ YES ☐ NO

Short Hold Time Analysis (<72 hr)? ☒ YES ☐ NO

Rush Turn Around Time Requested? ☒ YES ☐ NO

Sufficient Sample Volume? ☒ YES ☐ NO

Correct Containers Used? ☒ YES ☐ NO

Containers Intact? ☒ YES ☐ NO

Field Filtered Volume Received for Dissolved Tests? ☒ YES ☐ NO

Is sufficient information available to reconcile the samples to the COC? ☒ YES ☐ NO

NOTE: If ID/Date/Time don't match fill out section 11.

Matrix: ☐ Oil ☒ Soil ☐ Water ☐ Other

All containers needing acid/base preservation have been checked? ☒ YES ☐ NO

All containers needing preservation are found to be in compliance with EPA recommendation? (HNO₃, H₂SO₄, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) ☒ YES ☐ NO

Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS ☒ YES ☐ NO

NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.

Headspace in Methyl Mercury Container? ☒ YES ☐ NO

Extra labels present on soil VOA or WIDRO containers? ☒ YES ☐ NO

Headspace in VOA Vials (greater than 6mm)? ☒ YES ☐ NO

Trip Blanks Present? ☒ YES ☐ NO

Trip Blank Custody Seals Present? ☒ YES ☐ NO

1. COMMENT(S)

2. ☒ YES ☐ NO

3. ☒ YES ☐ NO

4. If fecal: ☐ <8 hrs ☐ >8 hrs ☐ <24 hr ☐ No

5. ☐ BOD / CBOD ☐ fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/E. coli ☐ Other:

6. ☒ YES ☐ NO

7. ☒ YES ☐ NO

8. ☒ YES ☐ NO

9. ☒ YES ☐ NO

10. Is sediment visible in the dissolved container: ☒ YES ☐ NO

11. If NO, write ID/Date/Time of container below:

12. Sample #: ☒ YES ☐ NO

Positive for Residual Chlorine: ☐ YES ☐ NO

pH Paper Lot #

Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip

13. ☒ YES ☐ NO

14. ☒ YES ☐ NO

15. ☒ YES ☐ NO

CLIENT NOTIFICATION / RESOLUTION

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

FIELD DATA REQUIRED: ☐ YES ☐ NO

Project Manager Review: _____ Date: 11/12/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: CRL

Line: 2

Effective Date: 05/10/24

Page 1 of 1

Page 28 of 28



December 05, 2024

Lexi Nickerson
Arcadis
7575 Huntington Park Dr 130
Columbus, OH 43235

RE: Project: 30214041.00006 Pontiac MI
Pace Project No.: 10715474

Dear Lexi Nickerson:

Enclosed are the analytical results for sample(s) received by the laboratory on November 13, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carolynne Trout

Carolynne Trout
carolynne.trout@pacelabs.com
1(612)607-6351
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW
Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10715474001	MWOS-09R_GW-110624	Water	11/06/24 11:25	11/13/24 08:50
10715474002	EB-01_110624	Water	11/06/24 10:30	11/13/24 08:50
10715474003	MWF16-25_GW-110624	Water	11/06/24 12:55	11/13/24 08:50
10715474004	MWF16-26_GW_110624	Water	11/06/24 14:35	11/13/24 08:50
10715474005	MW-03-17_GW-110624	Water	11/06/24 16:45	11/13/24 08:50
10715474006	MWF12-02R_GW-110724	Water	11/07/24 11:10	11/13/24 08:50
10715474007	MWW1-06_GW-110724	Water	11/07/24 14:50	11/13/24 08:50
10715474008	MWOS-04_GW-110724	Water	11/07/24 16:20	11/13/24 08:50
10715474009	MWOS-10_GW-110824	Water	11/08/24 13:20	11/13/24 08:50
10715474010	MWOS-05_GW-110824	Water	11/08/24 15:00	11/13/24 08:50
10715474011	MWW10-03_GW-110824	Water	11/08/24 17:00	11/13/24 08:50
10715474012	DUP-03_110824	Water	11/08/24 00:00	11/13/24 08:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10715474001	MWOS-09R_GW-110624	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474002	EB-01_110624	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474003	MWF16-25_GW-110624	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474004	MWF16-26_GW_110624	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474005	MW-03-17_GW-110624	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474006	MWF12-02R_GW-110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474007	MWW1-06_GW-110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474008	MWOS-04_GW-110724	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474009	MWOS-10_GW-110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474010	MWOS-05_GW-110824	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10715474011	MWW10-03_GW-110824	ENV-SOP-MIN4-0178	NBH	53	PASI-M
10715474012	DUP-03_110824	ENV-SOP-MIN4-0178	NBH	53	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10715474001	MWOS-09R_GW-110624					
ENV-SOP-MIN4-0178	PFBS	7.4	ng/L	1.8	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFHxA	10.5	ng/L	2.1	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFBA	9.5	ng/L	2.1	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFPeA	11.2	ng/L	2.1	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFPeS	4.2	ng/L	2.0	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFHpA	9.0	ng/L	2.1	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFHxS	17.1	ng/L	1.9	12/03/24 08:49	
ENV-SOP-MIN4-0178	PFOA	50.0	ng/L	2.1	12/03/24 08:49	
10715474003	MWF16-25_GW-110624					
ENV-SOP-MIN4-0178	PFBS	9.6	ng/L	1.8	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFHxA	12.3	ng/L	2.0	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFBA	12.0	ng/L	2.0	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFPeA	10.7	ng/L	2.0	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFPeS	7.9	ng/L	1.9	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFHpA	5.9	ng/L	2.0	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFHxS	18.2	ng/L	1.9	12/03/24 09:03	
ENV-SOP-MIN4-0178	PFOA	11.3	ng/L	2.0	12/03/24 09:03	
10715474004	MWF16-26_GW_110624					
ENV-SOP-MIN4-0178	PFBS	19.2	ng/L	1.8	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFHxA	30.4	ng/L	2.0	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFBA	18.8	ng/L	2.0	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFPeA	20.1	ng/L	2.0	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFPeS	22.9	ng/L	1.9	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFHpA	10.1	ng/L	2.0	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFHxS	25.4	ng/L	1.9	12/03/24 09:10	
ENV-SOP-MIN4-0178	PFOA	25.1	ng/L	2.0	12/03/24 09:10	
10715474005	MW-03-17_GW-110624					
ENV-SOP-MIN4-0178	PFBS	15.4	ng/L	9.3	12/03/24 09:18	
ENV-SOP-MIN4-0178	PFHxS	36.4	ng/L	9.5	12/03/24 09:18	
ENV-SOP-MIN4-0178	PFOS	200	ng/L	9.7	12/03/24 09:18	
ENV-SOP-MIN4-0178	PFOA	18.5	ng/L	10.5	12/03/24 09:18	
10715474006	MWF12-02R_GW-110724					
ENV-SOP-MIN4-0178	PFBS	9.1	ng/L	1.9	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFHxA	11.8	ng/L	2.2	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFBA	27.7	ng/L	2.2	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFPeA	12.8	ng/L	2.2	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFHpA	5.2	ng/L	2.2	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFHxS	3.6	ng/L	2.0	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFOS	4.5	ng/L	2.0	12/03/24 09:25	
ENV-SOP-MIN4-0178	PFOA	7.4	ng/L	2.2	12/03/24 09:25	
10715474009	MWOS-10_GW-110824					
ENV-SOP-MIN4-0178	PFBS	5.4	ng/L	2.1	12/03/24 09:47	
ENV-SOP-MIN4-0178	PFHxA	27.7	ng/L	2.4	12/03/24 09:47	
ENV-SOP-MIN4-0178	PFBA	18.5	ng/L	2.4	12/03/24 09:47	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10715474009	MWOS-10_GW-110824					
ENV-SOP-MIN4-0178	PFPeA	21.7	ng/L	2.4	12/03/24 09:47	
ENV-SOP-MIN4-0178	PFPeS	3.9	ng/L	2.2	12/03/24 09:47	
ENV-SOP-MIN4-0178	PFHpA	10.4	ng/L	2.4	12/03/24 09:47	
ENV-SOP-MIN4-0178	PFHxS	14.4	ng/L	2.2	12/03/24 09:47	
ENV-SOP-MIN4-0178	PFOA	7.2	ng/L	2.4	12/03/24 09:47	
10715474011	MWW10-03_GW-110824					
ENV-SOP-MIN4-0178	PFHxA	2.2	ng/L	1.9	11/27/24 01:17	
ENV-SOP-MIN4-0178	PFBA	7.0	ng/L	1.9	11/27/24 01:17	
ENV-SOP-MIN4-0178	PFHpA	2.3	ng/L	1.9	11/27/24 01:17	
ENV-SOP-MIN4-0178	PFHxS	2.1	ng/L	1.7	11/27/24 01:17	
ENV-SOP-MIN4-0178	PFOS	23.4	ng/L	1.8	11/27/24 01:17	
ENV-SOP-MIN4-0178	PFOA	10.7	ng/L	1.9	11/27/24 01:17	
10715474012	DUP-03_110824					
ENV-SOP-MIN4-0178	PFBA	31.4	ng/L	21.0	11/27/24 01:24	

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Method: ENV-SOP-MIN4-0178

Description: PFAS ID NPW

Client: Arcadis-OH

Date: December 05, 2024

General Information:

12 samples were analyzed for ENV-SOP-MIN4-0178 by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with ENV-SOP-MIN4-0178 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 981226

S0: Surrogate recovery outside laboratory control limits.

- MW-03-17_GW-110624 (Lab ID: 10715474005)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
- MWF12-02R_GW-110724 (Lab ID: 10715474006)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C4-PFBA (S)
 - d3-NMeFOSA (S)
 - d5-NEtFOSA (S)
- MWOS-04_GW-110724 (Lab ID: 10715474008)
 - 13C4-PFBA (S)
- MWOS-09R_GW-110624 (Lab ID: 10715474001)
 - 13C4-PFBA (S)
- MWOS-10_GW-110824 (Lab ID: 10715474009)
 - 13C8-PFOSA (S)
 - d3-MeFOSAA (S)
- MWW10-03_GW-110824 (Lab ID: 10715474011)
 - 13C24:2FTS (S)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Method: ENV-SOP-MIN4-0178

Description: PFAS ID NPW

Client: Arcadis-OH

Date: December 05, 2024

QC Batch: 981226

S0: Surrogate recovery outside laboratory control limits.

- 13C4-PFBA (S)

S3: Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.

- MWOS-04_GW-110724 (Lab ID: 10715474008)

- 13C24:2FTS (S)

- 13C26:2FTS (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWOS-09R_GW-110624 Lab ID: 10715474001 Collected: 11/06/24 11:25 Received: 11/13/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 240.535 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	2.0	0.42	1	11/26/24 06:15	12/03/24 08:49	763051-92-9	
4:2 FTS	ND	ng/L	1.9	0.38	1	11/26/24 06:15	12/03/24 08:49	757124-72-4	
6:2 FTS	ND	ng/L	2.0	0.59	1	11/26/24 06:15	12/03/24 08:49	27619-97-2	
8:2 FTS	ND	ng/L	2.0	0.82	1	11/26/24 06:15	12/03/24 08:49	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.9	0.37	1	11/26/24 06:15	12/03/24 08:49	756426-58-1	
ADONA	ND	ng/L	2.0	0.33	1	11/26/24 06:15	12/03/24 08:49	919005-14-4	
HFPO-DA	ND	ng/L	2.1	0.26	1	11/26/24 06:15	12/03/24 08:49	13252-13-6	
NEtFOSAA	ND	ng/L	2.1	0.59	1	11/26/24 06:15	12/03/24 08:49	2991-50-6	
NMeFOSAA	ND	ng/L	2.1	0.81	1	11/26/24 06:15	12/03/24 08:49	2355-31-9	
PFBS	7.4	ng/L	1.8	0.21	1	11/26/24 06:15	12/03/24 08:49	375-73-5	
PFDA	ND	ng/L	2.1	0.26	1	11/26/24 06:15	12/03/24 08:49	335-76-2	
PFHxA	10.5	ng/L	2.1	0.39	1	11/26/24 06:15	12/03/24 08:49	307-24-4	
PFBA	9.5	ng/L	2.1	0.29	1	11/26/24 06:15	12/03/24 08:49	375-22-4	
PFDS	ND	ng/L	2.0	0.59	1	11/26/24 06:15	12/03/24 08:49	335-77-3	
PFHpS	ND	ng/L	2.0	0.65	1	11/26/24 06:15	12/03/24 08:49	375-92-8	
PFNS	ND	ng/L	2.0	0.49	1	11/26/24 06:15	12/03/24 08:49	68259-12-1	
PFOSA	ND	ng/L	2.1	0.41	1	11/26/24 06:15	12/03/24 08:49	754-91-6	
PFPeA	11.2	ng/L	2.1	0.19	1	11/26/24 06:15	12/03/24 08:49	2706-90-3	
PFPeS	4.2	ng/L	2.0	0.27	1	11/26/24 06:15	12/03/24 08:49	2706-91-4	
PFDoA	ND	ng/L	2.1	0.45	1	11/26/24 06:15	12/03/24 08:49	307-55-1	
PFHpA	9.0	ng/L	2.1	0.24	1	11/26/24 06:15	12/03/24 08:49	375-85-9	
PFHxS	17.1	ng/L	1.9	0.24	1	11/26/24 06:15	12/03/24 08:49	355-46-4	
PFNA	ND	ng/L	2.1	0.22	1	11/26/24 06:15	12/03/24 08:49	375-95-1	
PFOS	ND	ng/L	1.9	0.53	1	11/26/24 06:15	12/03/24 08:49	1763-23-1	
PFOA	50.0	ng/L	2.1	0.28	1	11/26/24 06:15	12/03/24 08:49	335-67-1	
PFTeDA	ND	ng/L	2.1	0.38	1	11/26/24 06:15	12/03/24 08:49	376-06-7	
PFTrDA	ND	ng/L	2.1	0.29	1	11/26/24 06:15	12/03/24 08:49	72629-94-8	
PFUnA	ND	ng/L	2.1	0.66	1	11/26/24 06:15	12/03/24 08:49	2058-94-8	
Surrogates									
13C26:2FTS (S)	129	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C28:2FTS (S)	101	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C24:2FTS (S)	113	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C2-PFDoA (S)	90	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C2PFHxDA (S)	62	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C2-PFTA (S)	79	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C3HFPO-DA (S)	81	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C3-PFBS (S)	77	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C3-PFHxS (S)	99	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C4-PFBA (S)	44	%	50-150		1	11/26/24 06:15	12/03/24 08:49		S0
13C4-PFHpA (S)	97	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C5-PFHxA (S)	89	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C5-PFPeA (S)	72	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C6-PFDA (S)	98	%	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C7-PFUDa (S)	97	%	50-150		1	11/26/24 06:15	12/03/24 08:49		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWOS-09R_GW-110624		Lab ID: 10715474001		Collected: 11/06/24 11:25		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 240.535 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C8-PFOS (S)	97	%.	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C8-PFOSA (S)	75	%.	50-150		1	11/26/24 06:15	12/03/24 08:49		
13C9-PFNA (S)	100	%.	50-150		1	11/26/24 06:15	12/03/24 08:49		
d3-MeFOSAA (S)	96	%.	50-150		1	11/26/24 06:15	12/03/24 08:49		
d3-NMeFOSA (S)	12	%.	10-150		1	11/26/24 06:15	12/03/24 08:49		
d5-EtFOSAA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 08:49		
d5-NEtFOSA (S)	12	%.	10-150		1	11/26/24 06:15	12/03/24 08:49		
d7-NMeFOSE (S)	44	%.	10-150		1	11/26/24 06:15	12/03/24 08:49		
d9-NEtFOSE (S)	41	%.	10-150		1	11/26/24 06:15	12/03/24 08:49		

Sample: EB-01_110624		Lab ID: 10715474002		Collected: 11/06/24 10:30		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 224.219 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	2.1	0.45	1	11/26/24 06:15	12/03/24 08:56	763051-92-9	
4:2 FTS	ND	ng/L	2.1	0.40	1	11/26/24 06:15	12/03/24 08:56	757124-72-4	
6:2 FTS	ND	ng/L	2.1	0.64	1	11/26/24 06:15	12/03/24 08:56	27619-97-2	
8:2 FTS	ND	ng/L	2.2	0.88	1	11/26/24 06:15	12/03/24 08:56	39108-34-4	
9CI-PF3ONS	ND	ng/L	2.1	0.39	1	11/26/24 06:15	12/03/24 08:56	756426-58-1	
ADONA	ND	ng/L	2.1	0.36	1	11/26/24 06:15	12/03/24 08:56	919005-14-4	
HFPO-DA	ND	ng/L	2.2	0.28	1	11/26/24 06:15	12/03/24 08:56	13252-13-6	
NEtFOSAA	ND	ng/L	2.2	0.63	1	11/26/24 06:15	12/03/24 08:56	2991-50-6	
NMeFOSAA	ND	ng/L	2.2	0.87	1	11/26/24 06:15	12/03/24 08:56	2355-31-9	
PFBS	ND	ng/L	2.0	0.23	1	11/26/24 06:15	12/03/24 08:56	375-73-5	
PFDA	ND	ng/L	2.2	0.28	1	11/26/24 06:15	12/03/24 08:56	335-76-2	
PFHxA	ND	ng/L	2.2	0.42	1	11/26/24 06:15	12/03/24 08:56	307-24-4	
PFBA	ND	ng/L	2.2	0.31	1	11/26/24 06:15	12/03/24 08:56	375-22-4	
PFDS	ND	ng/L	2.2	0.63	1	11/26/24 06:15	12/03/24 08:56	335-77-3	
PFHpS	ND	ng/L	2.1	0.70	1	11/26/24 06:15	12/03/24 08:56	375-92-8	
PFNS	ND	ng/L	2.1	0.53	1	11/26/24 06:15	12/03/24 08:56	68259-12-1	
PFOSA	ND	ng/L	2.2	0.44	1	11/26/24 06:15	12/03/24 08:56	754-91-6	
PFPeA	ND	ng/L	2.2	0.20	1	11/26/24 06:15	12/03/24 08:56	2706-90-3	
PFPeS	ND	ng/L	2.1	0.29	1	11/26/24 06:15	12/03/24 08:56	2706-91-4	
PFDoA	ND	ng/L	2.2	0.48	1	11/26/24 06:15	12/03/24 08:56	307-55-1	
PFHpA	ND	ng/L	2.2	0.26	1	11/26/24 06:15	12/03/24 08:56	375-85-9	
PFHxS	ND	ng/L	2.0	0.26	1	11/26/24 06:15	12/03/24 08:56	355-46-4	
PFNA	ND	ng/L	2.2	0.23	1	11/26/24 06:15	12/03/24 08:56	375-95-1	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: EB-01_110624 Lab ID: 10715474002 Collected: 11/06/24 10:30 Received: 11/13/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 224.219 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
PFOS	ND	ng/L	2.1	0.57	1	11/26/24 06:15	12/03/24 08:56	1763-23-1	
PFOA	ND	ng/L	2.2	0.30	1	11/26/24 06:15	12/03/24 08:56	335-67-1	
PFTeDA	ND	ng/L	2.2	0.40	1	11/26/24 06:15	12/03/24 08:56	376-06-7	
PFTTrDA	ND	ng/L	2.2	0.31	1	11/26/24 06:15	12/03/24 08:56	72629-94-8	
PFUnA	ND	ng/L	2.2	0.71	1	11/26/24 06:15	12/03/24 08:56	2058-94-8	
Surrogates									
13C26:2FTS (S)	86	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C28:2FTS (S)	83	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C24:2FTS (S)	82	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C2-PFDoA (S)	84	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C2-PFHxDA (S)	67	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C2-PFTA (S)	80	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C3HFPO-DA (S)	93	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C3-PFBS (S)	97	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C3-PFHxS (S)	94	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C4-PFBA (S)	94	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C4-PFHpA (S)	97	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C5-PFHxA (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C5-PFPeA (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C6-PFDA (S)	92	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C7-PFUdA (S)	91	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C8-PFOA (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C8-PFOS (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C8-PFOSA (S)	80	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
13C9-PFNA (S)	94	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
d3-MeFOSAA (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
d3-NMeFOSA (S)	28	%	10-150		1	11/26/24 06:15	12/03/24 08:56		
d5-EtFOSAA (S)	91	%	50-150		1	11/26/24 06:15	12/03/24 08:56		
d5-NEtFOSA (S)	25	%	10-150		1	11/26/24 06:15	12/03/24 08:56		
d7-NMeFOSE (S)	65	%	10-150		1	11/26/24 06:15	12/03/24 08:56		
d9-NEtFOSE (S)	68	%	10-150		1	11/26/24 06:15	12/03/24 08:56		

Sample: MWF16-25_GW-110624 Lab ID: 10715474003 Collected: 11/06/24 12:55 Received: 11/13/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 244.096 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	1.9	0.42	1	11/26/24 06:15	12/03/24 09:03	763051-92-9	
4:2 FTS	ND	ng/L	1.9	0.37	1	11/26/24 06:15	12/03/24 09:03	757124-72-4	
6:2 FTS	ND	ng/L	1.9	0.58	1	11/26/24 06:15	12/03/24 09:03	27619-97-2	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWF16-25_GW-110624 Lab ID: 10715474003 Collected: 11/06/24 12:55 Received: 11/13/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 244.096 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
8:2 FTS	ND	ng/L	2.0	0.81	1	11/26/24 06:15	12/03/24 09:03	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.9	0.36	1	11/26/24 06:15	12/03/24 09:03	756426-58-1	
ADONA	ND	ng/L	1.9	0.33	1	11/26/24 06:15	12/03/24 09:03	919005-14-4	
HFPO-DA	ND	ng/L	2.0	0.26	1	11/26/24 06:15	12/03/24 09:03	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	0.58	1	11/26/24 06:15	12/03/24 09:03	2991-50-6	
NMeFOSAA	ND	ng/L	2.0	0.80	1	11/26/24 06:15	12/03/24 09:03	2355-31-9	
PFBS	9.6	ng/L	1.8	0.21	1	11/26/24 06:15	12/03/24 09:03	375-73-5	
PFDA	ND	ng/L	2.0	0.26	1	11/26/24 06:15	12/03/24 09:03	335-76-2	
PFHxA	12.3	ng/L	2.0	0.39	1	11/26/24 06:15	12/03/24 09:03	307-24-4	
PFBA	12.0	ng/L	2.0	0.29	1	11/26/24 06:15	12/03/24 09:03	375-22-4	
PFDS	ND	ng/L	2.0	0.58	1	11/26/24 06:15	12/03/24 09:03	335-77-3	
PFHpS	ND	ng/L	1.9	0.65	1	11/26/24 06:15	12/03/24 09:03	375-92-8	
PFNS	ND	ng/L	2.0	0.49	1	11/26/24 06:15	12/03/24 09:03	68259-12-1	
PFOSA	ND	ng/L	2.0	0.41	1	11/26/24 06:15	12/03/24 09:03	754-91-6	
PFPeA	10.7	ng/L	2.0	0.19	1	11/26/24 06:15	12/03/24 09:03	2706-90-3	
PFPeS	7.9	ng/L	1.9	0.26	1	11/26/24 06:15	12/03/24 09:03	2706-91-4	
PFDoA	ND	ng/L	2.0	0.44	1	11/26/24 06:15	12/03/24 09:03	307-55-1	
PFHpA	5.9	ng/L	2.0	0.24	1	11/26/24 06:15	12/03/24 09:03	375-85-9	
PFHxS	18.2	ng/L	1.9	0.24	1	11/26/24 06:15	12/03/24 09:03	355-46-4	
PFNA	ND	ng/L	2.0	0.21	1	11/26/24 06:15	12/03/24 09:03	375-95-1	
PFOS	ND	ng/L	1.9	0.52	1	11/26/24 06:15	12/03/24 09:03	1763-23-1	
PFOA	11.3	ng/L	2.0	0.27	1	11/26/24 06:15	12/03/24 09:03	335-67-1	
PFTeDA	ND	ng/L	2.0	0.37	1	11/26/24 06:15	12/03/24 09:03	376-06-7	
PFTTrDA	ND	ng/L	2.0	0.29	1	11/26/24 06:15	12/03/24 09:03	72629-94-8	
PFUnA	ND	ng/L	2.0	0.65	1	11/26/24 06:15	12/03/24 09:03	2058-94-8	
Surrogates									
13C26:2FTS (S)	103	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C28:2FTS (S)	108	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C24:2FTS (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C2-PFDoA (S)	103	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C2PFHxDA (S)	92	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C2-PFTA (S)	97	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C3HFPO-DA (S)	92	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C3-PFBS (S)	90	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C3-PFHxS (S)	102	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C4-PFBA (S)	79	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C4-PFHpA (S)	103	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C5-PFHxA (S)	98	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C5-PFPeA (S)	91	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C6-PFDA (S)	105	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C7-PFUDa (S)	112	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C8-PFOA (S)	105	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C8-PFOS (S)	104	%	50-150		1	11/26/24 06:15	12/03/24 09:03		
13C8-PFOSA (S)	90	%	50-150		1	11/26/24 06:15	12/03/24 09:03		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWF16-25_GW-110624		Lab ID: 10715474003		Collected: 11/06/24 12:55		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 244.096 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C9-PFNA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:03		
d3-MeFOSAA (S)	111	%.	50-150		1	11/26/24 06:15	12/03/24 09:03		
d3-NMeFOSA (S)	39	%.	10-150		1	11/26/24 06:15	12/03/24 09:03		
d5-EtFOSAA (S)	112	%.	50-150		1	11/26/24 06:15	12/03/24 09:03		
d5-NEtFOSA (S)	39	%.	10-150		1	11/26/24 06:15	12/03/24 09:03		
d7-NMeFOSE (S)	81	%.	10-150		1	11/26/24 06:15	12/03/24 09:03		
d9-NEtFOSE (S)	81	%.	10-150		1	11/26/24 06:15	12/03/24 09:03		

Sample: MWF16-26_GW_110624		Lab ID: 10715474004		Collected: 11/06/24 14:35		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 245.715 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	1.9	0.41	1	11/26/24 06:15	12/03/24 09:10	763051-92-9	
4:2 FTS	ND	ng/L	1.9	0.37	1	11/26/24 06:15	12/03/24 09:10	757124-72-4	
6:2 FTS	ND	ng/L	1.9	0.58	1	11/26/24 06:15	12/03/24 09:10	27619-97-2	
8:2 FTS	ND	ng/L	2.0	0.80	1	11/26/24 06:15	12/03/24 09:10	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.9	0.36	1	11/26/24 06:15	12/03/24 09:10	756426-58-1	
ADONA	ND	ng/L	1.9	0.33	1	11/26/24 06:15	12/03/24 09:10	919005-14-4	
HFPO-DA	ND	ng/L	2.0	0.26	1	11/26/24 06:15	12/03/24 09:10	13252-13-6	
NEtFOSAA	ND	ng/L	2.0	0.58	1	11/26/24 06:15	12/03/24 09:10	2991-50-6	
NMeFOSAA	ND	ng/L	2.0	0.79	1	11/26/24 06:15	12/03/24 09:10	2355-31-9	
PFBS	19.2	ng/L	1.8	0.21	1	11/26/24 06:15	12/03/24 09:10	375-73-5	
PFDA	ND	ng/L	2.0	0.25	1	11/26/24 06:15	12/03/24 09:10	335-76-2	
PFHxA	30.4	ng/L	2.0	0.38	1	11/26/24 06:15	12/03/24 09:10	307-24-4	
PFBA	18.8	ng/L	2.0	0.28	1	11/26/24 06:15	12/03/24 09:10	375-22-4	
PFDS	ND	ng/L	2.0	0.58	1	11/26/24 06:15	12/03/24 09:10	335-77-3	
PFHpS	ND	ng/L	1.9	0.64	1	11/26/24 06:15	12/03/24 09:10	375-92-8	
PFNS	ND	ng/L	2.0	0.48	1	11/26/24 06:15	12/03/24 09:10	68259-12-1	
PFOSA	ND	ng/L	2.0	0.40	1	11/26/24 06:15	12/03/24 09:10	754-91-6	
PFPeA	20.1	ng/L	2.0	0.19	1	11/26/24 06:15	12/03/24 09:10	2706-90-3	
PFPeS	22.9	ng/L	1.9	0.26	1	11/26/24 06:15	12/03/24 09:10	2706-91-4	
PFDoA	ND	ng/L	2.0	0.44	1	11/26/24 06:15	12/03/24 09:10	307-55-1	
PFHpA	10.1	ng/L	2.0	0.24	1	11/26/24 06:15	12/03/24 09:10	375-85-9	
PFHxS	25.4	ng/L	1.9	0.24	1	11/26/24 06:15	12/03/24 09:10	355-46-4	
PFNA	ND	ng/L	2.0	0.21	1	11/26/24 06:15	12/03/24 09:10	375-95-1	
PFOS	ND	ng/L	1.9	0.52	1	11/26/24 06:15	12/03/24 09:10	1763-23-1	
PFOA	25.1	ng/L	2.0	0.27	1	11/26/24 06:15	12/03/24 09:10	335-67-1	
PFTeDA	ND	ng/L	2.0	0.37	1	11/26/24 06:15	12/03/24 09:10	376-06-7	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWF16-26_GW_110624 Lab ID: 10715474004 Collected: 11/06/24 14:35 Received: 11/13/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 245.715 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
PFTTrDA	ND	ng/L	2.0	0.29	1	11/26/24 06:15	12/03/24 09:10	72629-94-8	
PFUnA	ND	ng/L	2.0	0.65	1	11/26/24 06:15	12/03/24 09:10	2058-94-8	
Surrogates									
13C26:2FTS (S)	107	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C28:2FTS (S)	93	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C24:2FTS (S)	98	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C2-PFDoA (S)	90	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C2PFHxDA (S)	80	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C2-PFTA (S)	85	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C3HFPO-DA (S)	84	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C3-PFBS (S)	83	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C3-PFHxS (S)	97	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C4-PFBA (S)	67	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C4-PFHpA (S)	99	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C5-PFHxA (S)	93	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C5-PFPeA (S)	81	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C6-PFDA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C7-PFUdA (S)	99	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C8-PFOA (S)	100	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C8-PFOS (S)	97	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C8-PFOSA (S)	81	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
13C9-PFNA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
d3-MeFOSAA (S)	94	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
d3-NMeFOSA (S)	27	%.	10-150		1	11/26/24 06:15	12/03/24 09:10		
d5-EtFOSAA (S)	99	%.	50-150		1	11/26/24 06:15	12/03/24 09:10		
d5-NEtFOSA (S)	24	%.	10-150		1	11/26/24 06:15	12/03/24 09:10		
d7-NMeFOSE (S)	65	%.	10-150		1	11/26/24 06:15	12/03/24 09:10		
d9-NEtFOSE (S)	65	%.	10-150		1	11/26/24 06:15	12/03/24 09:10		

Sample: MW-03-17_GW-110624 Lab ID: 10715474005 Collected: 11/06/24 16:45 Received: 11/13/24 08:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 47.733 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	9.8	2.1	1	11/26/24 06:15	12/03/24 09:18	763051-92-9	
4:2 FTS	ND	ng/L	9.8	1.9	1	11/26/24 06:15	12/03/24 09:18	757124-72-4	
6:2 FTS	ND	ng/L	10	3.0	1	11/26/24 06:15	12/03/24 09:18	27619-97-2	
8:2 FTS	ND	ng/L	10.1	4.1	1	11/26/24 06:15	12/03/24 09:18	39108-34-4	
9CI-PF3ONS	ND	ng/L	9.7	1.8	1	11/26/24 06:15	12/03/24 09:18	756426-58-1	
ADONA	ND	ng/L	9.9	1.7	1	11/26/24 06:15	12/03/24 09:18	919005-14-4	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MW-03-17_GW-110624 Lab ID: 10715474005 Collected: 11/06/24 16:45 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 47.733 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
HFPO-DA	ND	ng/L	10.5	1.3	1	11/26/24 06:15	12/03/24 09:18	13252-13-6		
NEtFOSAA	ND	ng/L	10.5	3.0	1	11/26/24 06:15	12/03/24 09:18	2991-50-6		
NMeFOSAA	ND	ng/L	10.5	4.1	1	11/26/24 06:15	12/03/24 09:18	2355-31-9		
PFBS	15.4	ng/L	9.3	1.1	1	11/26/24 06:15	12/03/24 09:18	375-73-5		
PFDA	ND	ng/L	10.5	1.3	1	11/26/24 06:15	12/03/24 09:18	335-76-2		
PFHxA	ND	ng/L	10.5	2.0	1	11/26/24 06:15	12/03/24 09:18	307-24-4		
PFBA	ND	ng/L	10.5	1.5	1	11/26/24 06:15	12/03/24 09:18	375-22-4		
PFDS	ND	ng/L	10.1	3.0	1	11/26/24 06:15	12/03/24 09:18	335-77-3		
PFHpS	ND	ng/L	10	3.3	1	11/26/24 06:15	12/03/24 09:18	375-92-8		
PFNS	ND	ng/L	10.1	2.5	1	11/26/24 06:15	12/03/24 09:18	68259-12-1		
PFOSA	ND	ng/L	10.5	2.1	1	11/26/24 06:15	12/03/24 09:18	754-91-6		
PFPeA	ND	ng/L	10.5	0.96	1	11/26/24 06:15	12/03/24 09:18	2706-90-3		
PFPeS	ND	ng/L	9.8	1.3	1	11/26/24 06:15	12/03/24 09:18	2706-91-4		
PFDaA	ND	ng/L	10.5	2.3	1	11/26/24 06:15	12/03/24 09:18	307-55-1		
PFHpA	ND	ng/L	10.5	1.2	1	11/26/24 06:15	12/03/24 09:18	375-85-9		
PFHxS	36.4	ng/L	9.5	1.2	1	11/26/24 06:15	12/03/24 09:18	355-46-4		
PFNA	ND	ng/L	10.5	1.1	1	11/26/24 06:15	12/03/24 09:18	375-95-1		
PFOS	200	ng/L	9.7	2.7	1	11/26/24 06:15	12/03/24 09:18	1763-23-1		
PFOA	18.5	ng/L	10.5	1.4	1	11/26/24 06:15	12/03/24 09:18	335-67-1		
PFTeDA	ND	ng/L	10.5	1.9	1	11/26/24 06:15	12/03/24 09:18	376-06-7		
PFTrDA	ND	ng/L	10.5	1.5	1	11/26/24 06:15	12/03/24 09:18	72629-94-8		
PFUnA	ND	ng/L	10.5	3.3	1	11/26/24 06:15	12/03/24 09:18	2058-94-8		
Surrogates										
13C26:2FTS (S)	225	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			S0
13C28:2FTS (S)	191	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			S0
13C24:2FTS (S)	150	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C2-PFDaA (S)	102	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C2PFHxDA (S)	82	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C2-PFTA (S)	94	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C3HFPO-DA (S)	70	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C3-PFBS (S)	78	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C3-PFHxS (S)	100	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C4-PFBA (S)	61	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C4-PFHpA (S)	100	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C5-PFHxA (S)	91	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C5-PFPeA (S)	70	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C6-PFDA (S)	108	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C7-PFUdA (S)	109	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C8-PFOA (S)	103	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C8-PFOS (S)	99	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C8-PFOSA (S)	86	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
13C9-PFNA (S)	102	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
d3-MeFOSAA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:18			
d3-NMeFOSA (S)	17	%.	10-150		1	11/26/24 06:15	12/03/24 09:18			

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MW-03-17_GW-110624		Lab ID: 10715474005		Collected: 11/06/24 16:45		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 47.733 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
d5-EtFOSAA (S)	108	%.	50-150		1	11/26/24 06:15	12/03/24 09:18		
d5-NEtFOSA (S)	13	%.	10-150		1	11/26/24 06:15	12/03/24 09:18		
d7-NMeFOSE (S)	59	%.	10-150		1	11/26/24 06:15	12/03/24 09:18		
d9-NEtFOSE (S)	62	%.	10-150		1	11/26/24 06:15	12/03/24 09:18		

Sample: MWF12-02R_GW-110724		Lab ID: 10715474006		Collected: 11/07/24 11:10		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 231.52 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	2.0	0.44	1	11/26/24 06:15	12/03/24 09:25	763051-92-9	
4:2 FTS	ND	ng/L	2.0	0.39	1	11/26/24 06:15	12/03/24 09:25	757124-72-4	
6:2 FTS	ND	ng/L	2.1	0.62	1	11/26/24 06:15	12/03/24 09:25	27619-97-2	
8:2 FTS	ND	ng/L	2.1	0.85	1	11/26/24 06:15	12/03/24 09:25	39108-34-4	
9CI-PF3ONS	ND	ng/L	2.0	0.38	1	11/26/24 06:15	12/03/24 09:25	756426-58-1	
ADONA	ND	ng/L	2.0	0.35	1	11/26/24 06:15	12/03/24 09:25	919005-14-4	
HFPO-DA	ND	ng/L	2.2	0.27	1	11/26/24 06:15	12/03/24 09:25	13252-13-6	
NEtFOSAA	ND	ng/L	2.2	0.61	1	11/26/24 06:15	12/03/24 09:25	2991-50-6	
NMeFOSAA	ND	ng/L	2.2	0.84	1	11/26/24 06:15	12/03/24 09:25	2355-31-9	
PFBS	9.1	ng/L	1.9	0.22	1	11/26/24 06:15	12/03/24 09:25	375-73-5	
PFDA	ND	ng/L	2.2	0.27	1	11/26/24 06:15	12/03/24 09:25	335-76-2	
PFHxA	11.8	ng/L	2.2	0.41	1	11/26/24 06:15	12/03/24 09:25	307-24-4	
PFBA	27.7	ng/L	2.2	0.30	1	11/26/24 06:15	12/03/24 09:25	375-22-4	
PFDS	ND	ng/L	2.1	0.61	1	11/26/24 06:15	12/03/24 09:25	335-77-3	
PFHpS	ND	ng/L	2.1	0.68	1	11/26/24 06:15	12/03/24 09:25	375-92-8	
PFNS	ND	ng/L	2.1	0.51	1	11/26/24 06:15	12/03/24 09:25	68259-12-1	
PFOSA	ND	ng/L	2.2	0.43	1	11/26/24 06:15	12/03/24 09:25	754-91-6	
PFPeA	12.8	ng/L	2.2	0.20	1	11/26/24 06:15	12/03/24 09:25	2706-90-3	
PFPeS	ND	ng/L	2.0	0.28	1	11/26/24 06:15	12/03/24 09:25	2706-91-4	
PFDoA	ND	ng/L	2.2	0.47	1	11/26/24 06:15	12/03/24 09:25	307-55-1	
PFHpA	5.2	ng/L	2.2	0.25	1	11/26/24 06:15	12/03/24 09:25	375-85-9	
PFHxS	3.6	ng/L	2.0	0.25	1	11/26/24 06:15	12/03/24 09:25	355-46-4	
PFNA	ND	ng/L	2.2	0.23	1	11/26/24 06:15	12/03/24 09:25	375-95-1	
PFOS	4.5	ng/L	2.0	0.55	1	11/26/24 06:15	12/03/24 09:25	1763-23-1	
PFOA	7.4	ng/L	2.2	0.29	1	11/26/24 06:15	12/03/24 09:25	335-67-1	
PFTeDA	ND	ng/L	2.2	0.39	1	11/26/24 06:15	12/03/24 09:25	376-06-7	
PFTTrDA	ND	ng/L	2.2	0.30	1	11/26/24 06:15	12/03/24 09:25	72629-94-8	
PFUnA	ND	ng/L	2.2	0.69	1	11/26/24 06:15	12/03/24 09:25	2058-94-8	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWF12-02R_GW-110724 Lab ID: 10715474006 Collected: 11/07/24 11:10 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 231.52 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

Surrogates

13C26:2FTS (S)	212	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		S0
13C28:2FTS (S)	136	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C24:2FTS (S)	167	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		S0
13C2-PFDoA (S)	81	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C2PFHxDA (S)	58	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C2-PFTA (S)	69	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C3HFPO-DA (S)	57	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C3-PFBS (S)	65	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C3-PFHxS (S)	88	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C4-PFBA (S)	37	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		S0
13C4-PFHpA (S)	86	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C5-PFHxA (S)	77	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C5-PFPeA (S)	54	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C6-PFDA (S)	92	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C7-PFUdA (S)	89	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C8-PFOA (S)	90	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C8-PFOS (S)	86	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C8-PFOSA (S)	64	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
13C9-PFNA (S)	87	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
d3-MeFOSAA (S)	86	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
d3-NMeFOSA (S)	6	%.	10-150		1	11/26/24 06:15	12/03/24 09:25		S0
d5-EtFOSAA (S)	91	%.	50-150		1	11/26/24 06:15	12/03/24 09:25		
d5-NEtFOSA (S)	6	%.	10-150		1	11/26/24 06:15	12/03/24 09:25		S0
d7-NMeFOSE (S)	29	%.	10-150		1	11/26/24 06:15	12/03/24 09:25		
d9-NEtFOSE (S)	27	%.	10-150		1	11/26/24 06:15	12/03/24 09:25		

Sample: MWW1-06_GW-110724 Lab ID: 10715474007 Collected: 11/07/24 14:50 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 50.031 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

11CI-PF3OUdS	ND	ng/L	9.4	2.0	1	11/26/24 06:15	12/03/24 09:32	763051-92-9	
4:2 FTS	ND	ng/L	9.3	1.8	1	11/26/24 06:15	12/03/24 09:32	757124-72-4	
6:2 FTS	ND	ng/L	9.5	2.9	1	11/26/24 06:15	12/03/24 09:32	27619-97-2	
8:2 FTS	ND	ng/L	9.6	3.9	1	11/26/24 06:15	12/03/24 09:32	39108-34-4	
9CI-PF3ONS	ND	ng/L	9.3	1.8	1	11/26/24 06:15	12/03/24 09:32	756426-58-1	
ADONA	ND	ng/L	9.4	1.6	1	11/26/24 06:15	12/03/24 09:32	919005-14-4	
HFPO-DA	ND	ng/L	10	1.3	1	11/26/24 06:15	12/03/24 09:32	13252-13-6	
NEtFOSAA	ND	ng/L	10	2.8	1	11/26/24 06:15	12/03/24 09:32	2991-50-6	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWW1-06_GW-110724 Lab ID: 10715474007 Collected: 11/07/24 14:50 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 50.031 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
NMeFOSAA	ND	ng/L	10	3.9	1	11/26/24 06:15	12/03/24 09:32	2355-31-9		
PFBS	ND	ng/L	8.8	1.0	1	11/26/24 06:15	12/03/24 09:32	375-73-5		
PFDA	ND	ng/L	10	1.2	1	11/26/24 06:15	12/03/24 09:32	335-76-2		
PFHxA	ND	ng/L	10	1.9	1	11/26/24 06:15	12/03/24 09:32	307-24-4		
PFBA	ND	ng/L	10	1.4	1	11/26/24 06:15	12/03/24 09:32	375-22-4		
PFDS	ND	ng/L	9.6	2.8	1	11/26/24 06:15	12/03/24 09:32	335-77-3		
PFHpS	ND	ng/L	9.5	3.1	1	11/26/24 06:15	12/03/24 09:32	375-92-8		
PFNS	ND	ng/L	9.6	2.4	1	11/26/24 06:15	12/03/24 09:32	68259-12-1		
PFOSA	ND	ng/L	10	2.0	1	11/26/24 06:15	12/03/24 09:32	754-91-6		
PFPeA	ND	ng/L	10	0.91	1	11/26/24 06:15	12/03/24 09:32	2706-90-3		
PFPeS	ND	ng/L	9.4	1.3	1	11/26/24 06:15	12/03/24 09:32	2706-91-4		
PFDoA	ND	ng/L	10	2.2	1	11/26/24 06:15	12/03/24 09:32	307-55-1		
PFHpA	ND	ng/L	10	1.2	1	11/26/24 06:15	12/03/24 09:32	375-85-9		
PFHxS	ND	ng/L	9.1	1.2	1	11/26/24 06:15	12/03/24 09:32	355-46-4		
PFNA	ND	ng/L	10	1.0	1	11/26/24 06:15	12/03/24 09:32	375-95-1		
PFOS	ND	ng/L	9.2	2.5	1	11/26/24 06:15	12/03/24 09:32	1763-23-1		
PFOA	ND	ng/L	10	1.3	1	11/26/24 06:15	12/03/24 09:32	335-67-1		
PFTeDA	ND	ng/L	10	1.8	1	11/26/24 06:15	12/03/24 09:32	376-06-7		
PFTTrDA	ND	ng/L	10	1.4	1	11/26/24 06:15	12/03/24 09:32	72629-94-8		
PFUnA	ND	ng/L	10	3.2	1	11/26/24 06:15	12/03/24 09:32	2058-94-8		
Surrogates										
13C26:2FTS (S)	89	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C28:2FTS (S)	84	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C24:2FTS (S)	74	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C2-PFDoA (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C2PFHxDA (S)	62	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C2-PFTA (S)	77	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C3HFPO-DA (S)	81	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C3-PFBS (S)	84	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C3-PFHxS (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C4-PFBA (S)	54	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C4-PFHpA (S)	92	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C5-PFHxA (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C5-PFPeA (S)	78	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C6-PFDA (S)	97	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C7-PFUdA (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C8-PFOA (S)	95	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C8-PFOS (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C8-PFOSA (S)	76	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
13C9-PFNA (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
d3-MeFOSAA (S)	95	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
d3-NMeFOSA (S)	36	%	10-150		1	11/26/24 06:15	12/03/24 09:32			
d5-EtFOSAA (S)	90	%	50-150		1	11/26/24 06:15	12/03/24 09:32			
d5-NEtFOSA (S)	35	%	10-150		1	11/26/24 06:15	12/03/24 09:32			

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWW1-06_GW-110724		Lab ID: 10715474007		Collected: 11/07/24 14:50		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 50.031 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
d7-NMeFOSE (S)	62	%.	10-150		1	11/26/24 06:15	12/03/24 09:32		
d9-NEtFOSE (S)	62	%.	10-150		1	11/26/24 06:15	12/03/24 09:32		

Sample: MWOS-04_GW-110724		Lab ID: 10715474008		Collected: 11/07/24 16:20		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 48.111 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	9.8	2.1	1	11/26/24 06:15	12/03/24 09:39	763051-92-9	
4:2 FTS	ND	ng/L	9.7	1.9	1	11/26/24 06:15	12/03/24 09:39	757124-72-4	
6:2 FTS	ND	ng/L	9.9	3.0	1	11/26/24 06:15	12/03/24 09:39	27619-97-2	
8:2 FTS	ND	ng/L	10.0	4.1	1	11/26/24 06:15	12/03/24 09:39	39108-34-4	
9CI-PF3ONS	ND	ng/L	9.7	1.8	1	11/26/24 06:15	12/03/24 09:39	756426-58-1	
ADONA	ND	ng/L	9.8	1.7	1	11/26/24 06:15	12/03/24 09:39	919005-14-4	
HFPO-DA	ND	ng/L	10.4	1.3	1	11/26/24 06:15	12/03/24 09:39	13252-13-6	
NEtFOSAA	ND	ng/L	10.4	3.0	1	11/26/24 06:15	12/03/24 09:39	2991-50-6	
NMeFOSAA	ND	ng/L	10.4	4.1	1	11/26/24 06:15	12/03/24 09:39	2355-31-9	
PFBS	ND	ng/L	9.2	1.1	1	11/26/24 06:15	12/03/24 09:39	375-73-5	
PFDA	ND	ng/L	10.4	1.3	1	11/26/24 06:15	12/03/24 09:39	335-76-2	
PFHxA	ND	ng/L	10.4	2.0	1	11/26/24 06:15	12/03/24 09:39	307-24-4	
PFBA	ND	ng/L	10.4	1.5	1	11/26/24 06:15	12/03/24 09:39	375-22-4	
PFDS	ND	ng/L	10.0	3.0	1	11/26/24 06:15	12/03/24 09:39	335-77-3	
PFHpS	ND	ng/L	9.9	3.3	1	11/26/24 06:15	12/03/24 09:39	375-92-8	
PFNS	ND	ng/L	10	2.5	1	11/26/24 06:15	12/03/24 09:39	68259-12-1	
PFOSA	ND	ng/L	10.4	2.1	1	11/26/24 06:15	12/03/24 09:39	754-91-6	
PFPeA	ND	ng/L	10.4	0.95	1	11/26/24 06:15	12/03/24 09:39	2706-90-3	
PFPeS	ND	ng/L	9.8	1.3	1	11/26/24 06:15	12/03/24 09:39	2706-91-4	
PFDaA	ND	ng/L	10.4	2.2	1	11/26/24 06:15	12/03/24 09:39	307-55-1	
PFHpA	ND	ng/L	10.4	1.2	1	11/26/24 06:15	12/03/24 09:39	375-85-9	
PFHxS	ND	ng/L	9.5	1.2	1	11/26/24 06:15	12/03/24 09:39	355-46-4	
PFNA	ND	ng/L	10.4	1.1	1	11/26/24 06:15	12/03/24 09:39	375-95-1	
PFOS	ND	ng/L	9.6	2.7	1	11/26/24 06:15	12/03/24 09:39	1763-23-1	
PFOA	ND	ng/L	10.4	1.4	1	11/26/24 06:15	12/03/24 09:39	335-67-1	
PFTeDA	ND	ng/L	10.4	1.9	1	11/26/24 06:15	12/03/24 09:39	376-06-7	
PFTTrDA	ND	ng/L	10.4	1.5	1	11/26/24 06:15	12/03/24 09:39	72629-94-8	
PFUnA	ND	ng/L	10.4	3.3	1	11/26/24 06:15	12/03/24 09:39	2058-94-8	
Surrogates									
13C26:2FTS (S)	196	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		S3
13C28:2FTS (S)	106	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWOS-04_GW-110724 Lab ID: 10715474008 Collected: 11/07/24 16:20 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 48.111 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

Surrogates

13C24:2FTS (S)	164	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		S3
13C2-PFDoA (S)	89	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C2PFHxDA (S)	87	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C2-PFTA (S)	87	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C3HFPO-DA (S)	59	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C3-PFBS (S)	71	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C3-PFHxS (S)	95	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C4-PFBA (S)	45	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		S0
13C4-PFHpA (S)	97	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C5-PFHxA (S)	85	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C5-PFPeA (S)	59	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C6-PFDA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C7-PFUdA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C8-PFOA (S)	101	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C8-PFOS (S)	92	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C8-PFOSA (S)	79	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
13C9-PFNA (S)	102	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
d3-MeFOSAA (S)	90	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
d3-NMeFOSA (S)	50	%.	10-150		1	11/26/24 06:15	12/03/24 09:39		
d5-EtFOSAA (S)	93	%.	50-150		1	11/26/24 06:15	12/03/24 09:39		
d5-NEtFOSA (S)	45	%.	10-150		1	11/26/24 06:15	12/03/24 09:39		
d7-NMeFOSE (S)	66	%.	10-150		1	11/26/24 06:15	12/03/24 09:39		
d9-NEtFOSE (S)	62	%.	10-150		1	11/26/24 06:15	12/03/24 09:39		

Sample: MWOS-10_GW-110824 Lab ID: 10715474009 Collected: 11/08/24 13:20 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 211.107 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

11CI-PF3OUdS	ND	ng/L	2.2	0.48	1	11/26/24 06:15	12/03/24 09:47	763051-92-9	
4:2 FTS	ND	ng/L	2.2	0.43	1	11/26/24 06:15	12/03/24 09:47	757124-72-4	
6:2 FTS	ND	ng/L	2.3	0.68	1	11/26/24 06:15	12/03/24 09:47	27619-97-2	
8:2 FTS	ND	ng/L	2.3	0.93	1	11/26/24 06:15	12/03/24 09:47	39108-34-4	
9CI-PF3ONS	ND	ng/L	2.2	0.42	1	11/26/24 06:15	12/03/24 09:47	756426-58-1	
ADONA	ND	ng/L	2.2	0.38	1	11/26/24 06:15	12/03/24 09:47	919005-14-4	
HFPO-DA	ND	ng/L	2.4	0.30	1	11/26/24 06:15	12/03/24 09:47	13252-13-6	
NEtFOSAA	ND	ng/L	2.4	0.67	1	11/26/24 06:15	12/03/24 09:47	2991-50-6	
NMeFOSAA	ND	ng/L	2.4	0.92	1	11/26/24 06:15	12/03/24 09:47	2355-31-9	
PFBS	5.4	ng/L	2.1	0.24	1	11/26/24 06:15	12/03/24 09:47	375-73-5	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWOS-10_GW-110824 Lab ID: 10715474009 Collected: 11/08/24 13:20 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 211.107 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
PFDA	ND	ng/L	2.4	0.30	1	11/26/24 06:15	12/03/24 09:47	335-76-2	
PFHxA	27.7	ng/L	2.4	0.45	1	11/26/24 06:15	12/03/24 09:47	307-24-4	
PFBA	18.5	ng/L	2.4	0.33	1	11/26/24 06:15	12/03/24 09:47	375-22-4	
PFDS	ND	ng/L	2.3	0.67	1	11/26/24 06:15	12/03/24 09:47	335-77-3	
PFHpS	ND	ng/L	2.3	0.75	1	11/26/24 06:15	12/03/24 09:47	375-92-8	
PFNS	ND	ng/L	2.3	0.56	1	11/26/24 06:15	12/03/24 09:47	68259-12-1	
PFOSA	ND	ng/L	2.4	0.47	1	11/26/24 06:15	12/03/24 09:47	754-91-6	
PFPeA	21.7	ng/L	2.4	0.22	1	11/26/24 06:15	12/03/24 09:47	2706-90-3	
PFPeS	3.9	ng/L	2.2	0.30	1	11/26/24 06:15	12/03/24 09:47	2706-91-4	
PFDoA	ND	ng/L	2.4	0.51	1	11/26/24 06:15	12/03/24 09:47	307-55-1	
PFHpA	10.4	ng/L	2.4	0.28	1	11/26/24 06:15	12/03/24 09:47	375-85-9	
PFHxS	14.4	ng/L	2.2	0.28	1	11/26/24 06:15	12/03/24 09:47	355-46-4	
PFNA	ND	ng/L	2.4	0.25	1	11/26/24 06:15	12/03/24 09:47	375-95-1	
PFOS	ND	ng/L	2.2	0.60	1	11/26/24 06:15	12/03/24 09:47	1763-23-1	
PFOA	7.2	ng/L	2.4	0.32	1	11/26/24 06:15	12/03/24 09:47	335-67-1	
PFTeDA	ND	ng/L	2.4	0.43	1	11/26/24 06:15	12/03/24 09:47	376-06-7	
PFTrDA	ND	ng/L	2.4	0.33	1	11/26/24 06:15	12/03/24 09:47	72629-94-8	
PFUnA	ND	ng/L	2.4	0.76	1	11/26/24 06:15	12/03/24 09:47	2058-94-8	
Surrogates									
13C26:2FTS (S)	108	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C28:2FTS (S)	83	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C24:2FTS (S)	83	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C2-PFDoA (S)	69	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C2PFHxDA (S)	72	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C2-PFTA (S)	73	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C3HFPO-DA (S)	76	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C3-PFBS (S)	77	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C3-PFHxS (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C4-PFBA (S)	64	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C4-PFHpA (S)	92	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C5-PFHxA (S)	89	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C5-PFPeA (S)	76	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C6-PFDA (S)	54	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C7-PFUdA (S)	90	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C8-PFOA (S)	95	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C8-PFOS (S)	86	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
13C8-PFOSA (S)	18	%	50-150		1	11/26/24 06:15	12/03/24 09:47		S0
13C9-PFNA (S)	93	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
d3-MeFOSAA (S)	33	%	50-150		1	11/26/24 06:15	12/03/24 09:47		S0
d3-NMeFOSA (S)	29	%	10-150		1	11/26/24 06:15	12/03/24 09:47		
d5-EtFOSAA (S)	89	%	50-150		1	11/26/24 06:15	12/03/24 09:47		
d5-NEtFOSA (S)	27	%	10-150		1	11/26/24 06:15	12/03/24 09:47		
d7-NMeFOSE (S)	45	%	10-150		1	11/26/24 06:15	12/03/24 09:47		
d9-NEtFOSE (S)	44	%	10-150		1	11/26/24 06:15	12/03/24 09:47		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWOS-05_GW-110824 Lab ID: 10715474010 Collected: 11/08/24 15:00 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report		MDL	DF	Prepared	Analyzed	CAS No.	Qual
			Limit							
PFAS ID NPW	Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
	Initial Volume/Weight: 24.05 mL Final Volume/Weight: 1 mL									
	Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	19.5	4.2	1	11/26/24 06:15	12/03/24 09:54	763051-92-9		
4:2 FTS	ND	ng/L	19.4	3.8	1	11/26/24 06:15	12/03/24 09:54	757124-72-4		
6:2 FTS	ND	ng/L	19.8	5.9	1	11/26/24 06:15	12/03/24 09:54	27619-97-2		
8:2 FTS	ND	ng/L	20.1	8.2	1	11/26/24 06:15	12/03/24 09:54	39108-34-4		
9CI-PF3ONS	ND	ng/L	19.3	3.7	1	11/26/24 06:15	12/03/24 09:54	756426-58-1		
ADONA	ND	ng/L	19.6	3.3	1	11/26/24 06:15	12/03/24 09:54	919005-14-4		
HFPO-DA	ND	ng/L	20.8	2.6	1	11/26/24 06:15	12/03/24 09:54	13252-13-6		
NEtFOSAA	ND	ng/L	20.8	5.9	1	11/26/24 06:15	12/03/24 09:54	2991-50-6		
NMeFOSAA	ND	ng/L	20.8	8.1	1	11/26/24 06:15	12/03/24 09:54	2355-31-9		
PFBS	ND	ng/L	18.4	2.1	1	11/26/24 06:15	12/03/24 09:54	375-73-5		
PFDA	ND	ng/L	20.8	2.6	1	11/26/24 06:15	12/03/24 09:54	335-76-2		
PFHxA	ND	ng/L	20.8	3.9	1	11/26/24 06:15	12/03/24 09:54	307-24-4		
PFBA	ND	ng/L	20.8	2.9	1	11/26/24 06:15	12/03/24 09:54	375-22-4		
PFDS	ND	ng/L	20.1	5.9	1	11/26/24 06:15	12/03/24 09:54	335-77-3		
PFHpS	ND	ng/L	19.8	6.5	1	11/26/24 06:15	12/03/24 09:54	375-92-8		
PFNS	ND	ng/L	20.0	4.9	1	11/26/24 06:15	12/03/24 09:54	68259-12-1		
PFOSA	ND	ng/L	20.8	4.1	1	11/26/24 06:15	12/03/24 09:54	754-91-6		
PFPeA	ND	ng/L	20.8	1.9	1	11/26/24 06:15	12/03/24 09:54	2706-90-3		
PFPeS	ND	ng/L	19.5	2.7	1	11/26/24 06:15	12/03/24 09:54	2706-91-4		
PFDoA	ND	ng/L	20.8	4.5	1	11/26/24 06:15	12/03/24 09:54	307-55-1		
PFHpA	ND	ng/L	20.8	2.4	1	11/26/24 06:15	12/03/24 09:54	375-85-9		
PFHxS	ND	ng/L	18.9	2.4	1	11/26/24 06:15	12/03/24 09:54	355-46-4		
PFNA	ND	ng/L	20.8	2.2	1	11/26/24 06:15	12/03/24 09:54	375-95-1		
PFOS	ND	ng/L	19.2	5.3	1	11/26/24 06:15	12/03/24 09:54	1763-23-1		
PFOA	ND	ng/L	20.8	2.8	1	11/26/24 06:15	12/03/24 09:54	335-67-1		
PFTeDA	ND	ng/L	20.8	3.8	1	11/26/24 06:15	12/03/24 09:54	376-06-7		
PFTrDA	ND	ng/L	20.8	2.9	1	11/26/24 06:15	12/03/24 09:54	72629-94-8		
PFUnA	ND	ng/L	20.8	6.6	1	11/26/24 06:15	12/03/24 09:54	2058-94-8		
Surrogates										
13C26:2FTS (S)	77	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C28:2FTS (S)	84	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C24:2FTS (S)	69	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C2-PFDoA (S)	87	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C2PFHxDA (S)	90	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C2-PFTA (S)	88	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C3HFPO-DA (S)	86	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C3-PFBS (S)	87	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C3-PFHxS (S)	95	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C4-PFBA (S)	76	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C4-PFHpA (S)	95	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C5-PFHxA (S)	92	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C5-PFPeA (S)	85	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C6-PFDA (S)	96	%	50-150		1	11/26/24 06:15	12/03/24 09:54			
13C7-PFUDa (S)	93	%	50-150		1	11/26/24 06:15	12/03/24 09:54			

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWOS-05_GW-110824		Lab ID: 10715474010		Collected: 11/08/24 15:00		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 24.05 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	95	%.	50-150		1	11/26/24 06:15	12/03/24 09:54		
13C8-PFOS (S)	91	%.	50-150		1	11/26/24 06:15	12/03/24 09:54		
13C8-PFOSA (S)	80	%.	50-150		1	11/26/24 06:15	12/03/24 09:54		
13C9-PFNA (S)	95	%.	50-150		1	11/26/24 06:15	12/03/24 09:54		
d3-MeFOSAA (S)	87	%.	50-150		1	11/26/24 06:15	12/03/24 09:54		
d3-NMeFOSA (S)	45	%.	10-150		1	11/26/24 06:15	12/03/24 09:54		
d5-EtFOSAA (S)	91	%.	50-150		1	11/26/24 06:15	12/03/24 09:54		
d5-NEtFOSA (S)	46	%.	10-150		1	11/26/24 06:15	12/03/24 09:54		
d7-NMeFOSE (S)	62	%.	10-150		1	11/26/24 06:15	12/03/24 09:54		
d9-NEtFOSE (S)	61	%.	10-150		1	11/26/24 06:15	12/03/24 09:54		

Sample: MWW10-03_GW-110824		Lab ID: 10715474011		Collected: 11/08/24 17:00		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 260.457 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	1.8	0.39	1	11/26/24 06:15	11/27/24 01:17	763051-92-9	
4:2 FTS	ND	ng/L	1.8	0.35	1	11/26/24 06:15	11/27/24 01:17	757124-72-4	
6:2 FTS	ND	ng/L	1.8	0.55	1	11/26/24 06:15	11/27/24 01:17	27619-97-2	
8:2 FTS	ND	ng/L	1.9	0.76	1	11/26/24 06:15	11/27/24 01:17	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.8	0.34	1	11/26/24 06:15	11/27/24 01:17	756426-58-1	
ADONA	ND	ng/L	1.8	0.31	1	11/26/24 06:15	11/27/24 01:17	919005-14-4	
HFPO-DA	ND	ng/L	1.9	0.24	1	11/26/24 06:15	11/27/24 01:17	13252-13-6	
NEtFOSAA	ND	ng/L	1.9	0.55	1	11/26/24 06:15	11/27/24 01:17	2991-50-6	
NMeFOSAA	ND	ng/L	1.9	0.75	1	11/26/24 06:15	11/27/24 01:17	2355-31-9	
PFBS	ND	ng/L	1.7	0.19	1	11/26/24 06:15	11/27/24 01:17	375-73-5	
PFDA	ND	ng/L	1.9	0.24	1	11/26/24 06:15	11/27/24 01:17	335-76-2	
PFHxA	2.2	ng/L	1.9	0.36	1	11/26/24 06:15	11/27/24 01:17	307-24-4	
PFBA	7.0	ng/L	1.9	0.27	1	11/26/24 06:15	11/27/24 01:17	375-22-4	
PFDS	ND	ng/L	1.9	0.55	1	11/26/24 06:15	11/27/24 01:17	335-77-3	
PFHpS	ND	ng/L	1.8	0.60	1	11/26/24 06:15	11/27/24 01:17	375-92-8	
PFNS	ND	ng/L	1.8	0.45	1	11/26/24 06:15	11/27/24 01:17	68259-12-1	
PFOSA	ND	ng/L	1.9	0.38	1	11/26/24 06:15	11/27/24 01:17	754-91-6	
PFPeA	ND	ng/L	1.9	0.18	1	11/26/24 06:15	11/27/24 01:17	2706-90-3	
PFPeS	ND	ng/L	1.8	0.25	1	11/26/24 06:15	11/27/24 01:17	2706-91-4	
PFDoA	ND	ng/L	1.9	0.41	1	11/26/24 06:15	11/27/24 01:17	307-55-1	
PFHpA	2.3	ng/L	1.9	0.23	1	11/26/24 06:15	11/27/24 01:17	375-85-9	
PFHxS	2.1	ng/L	1.7	0.22	1	11/26/24 06:15	11/27/24 01:17	355-46-4	
PFNA	ND	ng/L	1.9	0.20	1	11/26/24 06:15	11/27/24 01:17	375-95-1	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: MWW10-03_GW-110824 Lab ID: 10715474011 Collected: 11/08/24 17:00 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 260.457 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
PFOS	23.4	ng/L	1.8	0.49	1	11/26/24 06:15	11/27/24 01:17	1763-23-1	
PFOA	10.7	ng/L	1.9	0.26	1	11/26/24 06:15	11/27/24 01:17	335-67-1	
PFTeDA	ND	ng/L	1.9	0.35	1	11/26/24 06:15	11/27/24 01:17	376-06-7	
PFTTrDA	ND	ng/L	1.9	0.27	1	11/26/24 06:15	11/27/24 01:17	72629-94-8	
PFUnA	ND	ng/L	1.9	0.61	1	11/26/24 06:15	11/27/24 01:17	2058-94-8	
Surrogates									
13C26:2FTS (S)	261	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		S0
13C28:2FTS (S)	237	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		S0
13C24:2FTS (S)	183	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		S0
13C2-PFDoA (S)	122	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C2PFHxDA (S)	102	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C2-PFTA (S)	109	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C3HFPO-DA (S)	83	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C3-PFBS (S)	85	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C3-PFHxS (S)	93	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C4-PFBA (S)	47	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		S0
13C4-PFHpA (S)	97	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C5-PFHxA (S)	92	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C5-PFPeA (S)	70	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C6-PFDA (S)	117	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C7-PFUDa (S)	123	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C8-PFOA (S)	101	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C8-PFOS (S)	115	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C8-PFOSA (S)	102	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
13C9-PFNA (S)	109	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
d3-MeFOSAA (S)	124	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
d3-NMeFOSA (S)	46	%.	10-150		1	11/26/24 06:15	11/27/24 01:17		
d5-EtFOSAA (S)	135	%.	50-150		1	11/26/24 06:15	11/27/24 01:17		
d5-NEtFOSA (S)	45	%.	10-150		1	11/26/24 06:15	11/27/24 01:17		
d7-NMeFOSE (S)	80	%.	10-150		1	11/26/24 06:15	11/27/24 01:17		
d9-NEtFOSE (S)	76	%.	10-150		1	11/26/24 06:15	11/27/24 01:17		

Sample: DUP-03_110824 Lab ID: 10715474012 Collected: 11/08/24 00:00 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 23.832 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	19.7	4.3	1	11/26/24 06:15	11/27/24 01:24	763051-92-9	
4:2 FTS	ND	ng/L	19.6	3.8	1	11/26/24 06:15	11/27/24 01:24	757124-72-4	
6:2 FTS	ND	ng/L	19.9	6.0	1	11/26/24 06:15	11/27/24 01:24	27619-97-2	

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: DUP-03_110824		Lab ID: 10715474012		Collected: 11/08/24 00:00		Received: 11/13/24 08:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 23.832 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
8:2 FTS	ND	ng/L	20.2	8.3	1	11/26/24 06:15	11/27/24 01:24	39108-34-4	
9CI-PF3ONS	ND	ng/L	19.5	3.7	1	11/26/24 06:15	11/27/24 01:24	756426-58-1	
ADONA	ND	ng/L	19.8	3.4	1	11/26/24 06:15	11/27/24 01:24	919005-14-4	
HFPO-DA	ND	ng/L	21.0	2.6	1	11/26/24 06:15	11/27/24 01:24	13252-13-6	
NEtFOSAA	ND	ng/L	21.0	6.0	1	11/26/24 06:15	11/27/24 01:24	2991-50-6	
NMeFOSAA	ND	ng/L	21.0	8.2	1	11/26/24 06:15	11/27/24 01:24	2355-31-9	
PFBS	ND	ng/L	18.6	2.1	1	11/26/24 06:15	11/27/24 01:24	375-73-5	
PFDA	ND	ng/L	21.0	2.6	1	11/26/24 06:15	11/27/24 01:24	335-76-2	
PFHxA	ND	ng/L	21.0	4.0	1	11/26/24 06:15	11/27/24 01:24	307-24-4	
PFBA	31.4	ng/L	21.0	2.9	1	11/26/24 06:15	11/27/24 01:24	375-22-4	
PFDS	ND	ng/L	20.2	6.0	1	11/26/24 06:15	11/27/24 01:24	335-77-3	
PFHpS	ND	ng/L	19.9	6.6	1	11/26/24 06:15	11/27/24 01:24	375-92-8	
PFNS	ND	ng/L	20.1	5.0	1	11/26/24 06:15	11/27/24 01:24	68259-12-1	
PFOSA	ND	ng/L	21.0	4.2	1	11/26/24 06:15	11/27/24 01:24	754-91-6	
PFPeA	ND	ng/L	21.0	1.9	1	11/26/24 06:15	11/27/24 01:24	2706-90-3	
PFPeS	ND	ng/L	19.7	2.7	1	11/26/24 06:15	11/27/24 01:24	2706-91-4	
PFDoA	ND	ng/L	21.0	4.5	1	11/26/24 06:15	11/27/24 01:24	307-55-1	
PFHpA	ND	ng/L	21.0	2.5	1	11/26/24 06:15	11/27/24 01:24	375-85-9	
PFHxS	ND	ng/L	19.1	2.5	1	11/26/24 06:15	11/27/24 01:24	355-46-4	
PFNA	ND	ng/L	21.0	2.2	1	11/26/24 06:15	11/27/24 01:24	375-95-1	
PFOS	ND	ng/L	19.4	5.3	1	11/26/24 06:15	11/27/24 01:24	1763-23-1	
PFOA	ND	ng/L	21.0	2.8	1	11/26/24 06:15	11/27/24 01:24	335-67-1	
PFTeDA	ND	ng/L	21.0	3.8	1	11/26/24 06:15	11/27/24 01:24	376-06-7	
PFTTrDA	ND	ng/L	21.0	3.0	1	11/26/24 06:15	11/27/24 01:24	72629-94-8	
PFUnA	ND	ng/L	21.0	6.7	1	11/26/24 06:15	11/27/24 01:24	2058-94-8	
Surrogates									
13C26:2FTS (S)	81	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C28:2FTS (S)	89	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C24:2FTS (S)	79	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C2-PFDoA (S)	110	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C2PFHxDA (S)	106	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C2-PFTA (S)	106	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C3HFPO-DA (S)	124	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C3-PFBS (S)	102	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C3-PFHxS (S)	105	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C4-PFBA (S)	96	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C4-PFHpA (S)	109	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C5-PFHxA (S)	109	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C5-PFPeA (S)	102	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C6-PFDA (S)	115	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C7-PFUDa (S)	113	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C8-PFOA (S)	116	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C8-PFOS (S)	119	%	50-150		1	11/26/24 06:15	11/27/24 01:24		
13C8-PFOSA (S)	99	%	50-150		1	11/26/24 06:15	11/27/24 01:24		

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ANALYTICAL RESULTS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Sample: DUP-03_110824 Lab ID: 10715474012 Collected: 11/08/24 00:00 Received: 11/13/24 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 23.832 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

Surrogates

13C9-PFNA (S)	116	%.	50-150		1	11/26/24 06:15	11/27/24 01:24		
d3-MeFOSAA (S)	105	%.	50-150		1	11/26/24 06:15	11/27/24 01:24		
d3-NMeFOSA (S)	53	%.	10-150		1	11/26/24 06:15	11/27/24 01:24		
d5-EtFOSAA (S)	106	%.	50-150		1	11/26/24 06:15	11/27/24 01:24		
d5-NEtFOSA (S)	51	%.	10-150		1	11/26/24 06:15	11/27/24 01:24		
d7-NMeFOSE (S)	76	%.	10-150		1	11/26/24 06:15	11/27/24 01:24		
d9-NEtFOSE (S)	70	%.	10-150		1	11/26/24 06:15	11/27/24 01:24		

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

QC Batch:	981226	Analysis Method:	ENV-SOP-MIN4-0178
QC Batch Method:	ENV-SOP-MIN4-0178	Analysis Description:	PFAS Compounds, Water
		Laboratory:	Pace Analytical Services - Minneapolis

Associated Lab Samples: 10715474001, 10715474002, 10715474003, 10715474004, 10715474005, 10715474006, 10715474007, 10715474008, 10715474009, 10715474010, 10715474011, 10715474012

METHOD BLANK: 5126532

Matrix: Water

Associated Lab Samples: 10715474001, 10715474002, 10715474003, 10715474004, 10715474005, 10715474006, 10715474007, 10715474008, 10715474009, 10715474010, 10715474011, 10715474012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	ND	1.9	0.40	12/03/24 08:27	
4:2 FTS	ng/L	ND	1.9	0.36	12/03/24 08:27	
6:2 FTS	ng/L	ND	1.9	0.57	12/03/24 08:27	
8:2 FTS	ng/L	ND	1.9	0.79	12/03/24 08:27	
9CI-PF3ONS	ng/L	ND	1.9	0.35	12/03/24 08:27	
ADONA	ng/L	ND	1.9	0.32	12/03/24 08:27	
HFPO-DA	ng/L	ND	2.0	0.25	12/03/24 08:27	
NEtFOSAA	ng/L	ND	2.0	0.57	12/03/24 08:27	
NMeFOSAA	ng/L	ND	2.0	0.78	12/03/24 08:27	
PFBA	ng/L	ND	2.0	0.28	12/03/24 08:27	
PFBS	ng/L	ND	1.8	0.20	12/03/24 08:27	
PFDA	ng/L	ND	2.0	0.25	12/03/24 08:27	
PFDoA	ng/L	ND	2.0	0.43	12/03/24 08:27	
PFDS	ng/L	ND	1.9	0.57	12/03/24 08:27	
PFHpA	ng/L	ND	2.0	0.23	12/03/24 08:27	
PFHpS	ng/L	ND	1.9	0.63	12/03/24 08:27	
PFHxA	ng/L	ND	2.0	0.38	12/03/24 08:27	
PFHxS	ng/L	ND	1.8	0.23	12/03/24 08:27	
PFNA	ng/L	ND	2.0	0.21	12/03/24 08:27	
PFNS	ng/L	ND	1.9	0.47	12/03/24 08:27	
PFOA	ng/L	ND	2.0	0.27	12/03/24 08:27	
PFOS	ng/L	ND	1.8	0.51	12/03/24 08:27	
PFOSA	ng/L	ND	2.0	0.40	12/03/24 08:27	
PFPeA	ng/L	ND	2.0	0.18	12/03/24 08:27	
PFPeS	ng/L	ND	1.9	0.25	12/03/24 08:27	
PFTeDA	ng/L	ND	2.0	0.36	12/03/24 08:27	
PFTrDA	ng/L	ND	2.0	0.28	12/03/24 08:27	
PFUnA	ng/L	ND	2.0	0.64	12/03/24 08:27	
13C2-PFDoA (S)	%	90	50-150		12/03/24 08:27	
13C2-PFTA (S)	%	87	50-150		12/03/24 08:27	
13C24:2FTS (S)	%	78	50-150		12/03/24 08:27	
13C26:2FTS (S)	%	83	50-150		12/03/24 08:27	
13C28:2FTS (S)	%	76	50-150		12/03/24 08:27	
13C2PFHxDA (S)	%	75	50-150		12/03/24 08:27	
13C3-PFBS (S)	%	98	50-150		12/03/24 08:27	
13C3-PFHxS (S)	%	98	50-150		12/03/24 08:27	
13C3HFPO-DA (S)	%	97	50-150		12/03/24 08:27	
13C4-PFBA (S)	%	99	50-150		12/03/24 08:27	
13C4-PFHpA (S)	%	98	50-150		12/03/24 08:27	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

METHOD BLANK: 5126532

Matrix: Water

Associated Lab Samples: 10715474001, 10715474002, 10715474003, 10715474004, 10715474005, 10715474006, 10715474007, 10715474008, 10715474009, 10715474010, 10715474011, 10715474012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
13C5-PFHxA (S)	%.	97	50-150		12/03/24 08:27	
13C5-PFPeA (S)	%.	100	50-150		12/03/24 08:27	
13C6-PFDA (S)	%.	96	50-150		12/03/24 08:27	
13C7-PFUdA (S)	%.	99	50-150		12/03/24 08:27	
13C8-PFOA (S)	%.	101	50-150		12/03/24 08:27	
13C8-PFOS (S)	%.	97	50-150		12/03/24 08:27	
13C8-PFOSA (S)	%.	90	50-150		12/03/24 08:27	
13C9-PFNA (S)	%.	97	50-150		12/03/24 08:27	
d3-MeFOSAA (S)	%.	96	50-150		12/03/24 08:27	
d3-NMeFOSA (S)	%.	43	10-150		12/03/24 08:27	
d5-EtFOSAA (S)	%.	90	50-150		12/03/24 08:27	
d5-NEtFOSA (S)	%.	40	10-150		12/03/24 08:27	
d7-NMeFOSE (S)	%.	82	10-150		12/03/24 08:27	
d9-NEtFOSE (S)	%.	82	10-150		12/03/24 08:27	

LABORATORY CONTROL SAMPLE & LCSD: 5126533

5126534

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11CI-PF3OUdS	ng/L	3.7	3.6	3.2	97	85	70-140	11	30	
4:2 FTS	ng/L	3.7	3.4	3.7	93	98	63-143	8	30	
6:2 FTS	ng/L	3.7	3.6	3.8	97	100	64-140	5	30	
8:2 FTS	ng/L	3.7	3.8	3.7	102	96	67-138	4	30	
9CI-PF3ONS	ng/L	3.7	3.4	3.3	92	89	70-140	1	30	
ADONA	ng/L	3.7	3.4	3.5	92	93	70-140	4	30	
HFPO-DA	ng/L	3.9	3.9	3.8	99	96	70-140	1	30	
NEtFOSAA	ng/L	3.9	3.7	3.7	94	93	61-135	1	30	
NMeFOSAA	ng/L	3.9	3.8	3.6	96	91	65-136	3	30	
PFBA	ng/L	3.9	3.7	3.8	94	96	73-129	5	30	
PFBS	ng/L	3.5	3.2	3.4	94	95	72-130	4	30	
PFDA	ng/L	3.9	3.6	3.8	92	96	71-129	7	30	
PFDoA	ng/L	3.9	3.6	4.0	93	100	72-134	10	30	
PFDS	ng/L	3.8	3.7	4.0	97	103	53-142	8	30	
PFHpA	ng/L	3.9	3.6	3.7	93	93	72-130	3	30	
PFHpS	ng/L	3.7	3.6	3.5	96	92	69-134	1	30	
PFHxA	ng/L	3.9	3.6	3.9	93	96	72-129	6	30	
PFHxS	ng/L	3.6	3.0	3.4	85	92	68-131	11	30	
PFNA	ng/L	3.9	3.6	3.7	92	93	69-130	4	30	
PFNS	ng/L	3.7	3.6	3.1	96	81	69-127	14	30	
PFOA	ng/L	3.9	3.8	3.8	97	95	71-133	1	30	
PFOS	ng/L	3.6	3.4	3.0	94	80	65-140	13	30	
PFOSA	ng/L	3.9	3.6	3.8	93	94	67-137	4	30	
PFPeA	ng/L	3.9	3.6	3.9	92	96	72-129	7	30	
PFPeS	ng/L	3.7	3.3	3.4	90	89	71-127	2	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

LABORATORY CONTROL SAMPLE & LCSD: 5126533			5126534							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
PFTeDA	ng/L	3.9	3.5	3.6	89	91	71-132	4	30	
PFTrDA	ng/L	3.9	3.6	3.9	91	98	65-144	10	30	
PFUnA	ng/L	3.9	3.4	3.6	86	89	69-133	6	30	
13C2-PFDoA (S)	%				89	93	50-150			
13C2-PFTA (S)	%				84	90	50-150			
13C24:2FTS (S)	%				76	77	50-150			
13C26:2FTS (S)	%				82	90	50-150			
13C28:2FTS (S)	%				82	92	50-150			
13C2PFHxDA (S)	%				67	73	50-150			
13C3-PFBS (S)	%				95	97	50-150			
13C3-PFHxS (S)	%				96	99	50-150			
13C3HFPO-DA (S)	%				94	96	50-150			
13C4-PFBA (S)	%				95	97	50-150			
13C4-PFHpA (S)	%				95	98	50-150			
13C5-PFHxA (S)	%				94	97	50-150			
13C5-PFPeA (S)	%				96	99	50-150			
13C6-PFDA (S)	%				93	95	50-150			
13C7-PFUdA (S)	%				99	105	50-150			
13C8-PFOA (S)	%				95	98	50-150			
13C8-PFOS (S)	%				90	101	50-150			
13C8-PFOSA (S)	%				87	91	50-150			
13C9-PFNA (S)	%				94	97	50-150			
d3-MeFOSAA (S)	%				96	104	50-150			
d3-NMeFOSA (S)	%				53	43	10-150			
d5-EtFOSAA (S)	%				93	102	50-150			
d5-NEtFOSA (S)	%				57	41	10-150			
d7-NMeFOSE (S)	%				77	76	10-150			
d9-NEtFOSE (S)	%				83	83	10-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

S3 Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 30214041.00006 Pontiac MI

Pace Project No.: 10715474

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10715474001	MWOS-09R_GW-110624	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474002	EB-01_110624	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474003	MWF16-25_GW-110624	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474004	MWF16-26_GW_110624	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474005	MW-03-17_GW-110624	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474006	MWF12-02R_GW-110724	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474007	MWW1-06_GW-110724	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474008	MWOS-04_GW-110724	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474009	MWOS-10_GW-110824	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474010	MWOS-05_GW-110824	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474011	MWW10-03_GW-110824	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014
10715474012	DUP-03_110824	ENV-SOP-MIN4-0178	981226	ENV-SOP-MIN4-0178	982014

REPORT OF LABORATORY ANALYSIS

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Pace® Location Requested (City/State):

Pace Analytical Minnesota
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Company Name: Arcadis-OH
Street Address: 7575 Huntington Park Dr. 130
Columbus, OH 43235

Customer Project #:

Project Name: Pontiac Michigan PFAS

Site Collection Info/Facility ID (as applicable):

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Contact/Report To: Lexi Nickerson

Phone #: 614-985-9100

E-Mail: alexis.nickerson@arcadis.com

Cc E-Mail:

Invoice To: ACCOUNTS PAYABLE

Invoice E-Mail: ACCOUNTS PAYABLE - ADMINISTRATION@ARCADIS.COM

Purchase Order # (if applicable):

Quote #:

County / State origin of sample(s): Michigan

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [] Yes [] No

Rush (Pre-approval required):

[] Same Day [] 1 Day [] 2 Day [] 3 Day [] Other

Date Results Requested:

[] Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Composite Start		Collected or Composite End		# Cont.	Res. Chlorine	
		Date	Time	Date	Time		Results	Units
MWOS-09B-GW-110624	GW	11/6/24	1125	11/6/24	1125	2		
EB-01-110624	GW	11/6/24	1030	11/6/24	1030	1		
MWFI6-25-GW-110624	GW	11/6/24	1255	11/6/24	1255	2		
MWFI6-26-GW-110624	GW	11/6/24	1435	11/6/24	1435	2		
MW-03-17-GW-110624	GW	11/6/24	1645	11/6/24	1645	2		
MWFI7-02B-GW-110724	GW	11/7/24	1110	11/7/24	1110	2		
MWU1-06-GW-110724	GW	11/7/24	1450	11/7/24	1450	2		
MWOS-04-GW-110724	GW	11/7/24	1620	11/7/24	1620	2		
MWOS-10-GW-110824	GW	11/8/24	1320	11/8/24	1320	2		

Additional Instructions from Pace®:

Collected By: Alana Rano

(Printed Name)

Signature: Alana Rano

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Received by/Company: (Signature)

Date/Time: 11/13/24 1600

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Specify Container Size **

Identify Container Preservative Type ***

Analysis Requested

Equipment Blank - PFAS ID NPW

PFAS ID NPW

Sample Comment

Preservation non-conformance identified for

Proj. Mgr:

AccNum / Client ID:

Table #:

Profile / Template:

Prelog / Bottle Ord. ID:

EZ 3168008

Sample Comment

001

002

003

004

005

006

007

008

009

Customer Remarks / Special Conditions / Possible Hazards:

Cooling: 1

Thermometer ID: 74

Correction Factor (°C): 0

Obs. Temp. (°C): 1.9

Corrected Temp. (°C): 1.9

On Ice: y

Tracking Number:

Date/Time: 11/13/24 850

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

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Date/Time:

Date/Time:

Date/Time:

** Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) Encore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Preservation non-conformance identified for

Proj. Mgr:

AccNum / Client ID:

Table #:

Profile / Template:

Prelog / Bottle Ord. ID:

EZ 3168008

Sample Comment

001

002

003

004

005

006

007

008

009

Customer Remarks / Special Conditions / Possible Hazards:

Cooling: 1

Thermometer ID: 74

Correction Factor (°C): 0

Obs. Temp. (°C): 1.9

Corrected Temp. (°C): 1.9

On Ice: y

Tracking Number:

Date/Time: 11/13/24 850

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

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Date/Time:

Date/Time:

Date/Time:

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Date/Time:

Date/Time:

Date/Time:

Date/Time:

Company Name: Arcadis-OH

Street Address: 7575 Huntington Park Dr 130
Columbus, OH 43235

Customer Project #:

Project Name: Pontiac Michigan PFAS

Site Collection Info/Facility ID (as applicable):

Time Zone Collected: [] AK [] PT [] MT [] CT [] ET

Data Deliverables:

☒ Level II [] Level III [] Level IV

☒ LEQUIS

☒ Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID

MW05-05-GW-110824 GW G
MW10-03-GW-110824 GW G
DUP-03-110824 GW G

Comp / Grab

Matrix *

Composite Start

Date

Time

End

Time

Cont.

Res. Chlorine

Results

Units

#

Collected or Composite

Date

Time

Field Filtered (if applicable): [] Yes [] No

Analysis:

Rush (Pre-approval required):

[] Same Day [] 1 Day [] 2 Day [] 3 Day [] Other

DW PWSID # or WW Permit # as applicable:

County / State origin of sample(s): Michigan

Reportable [] Yes [] No

Quote #:

Invoice To:

Invoice E-Mail:

Purchase Order # (if applicable):

Quote #:

Contact/Report To: Lexi Nickerson

Phone #: 614-985-9100

E-Mail: alexis.nickerson@arcadis.com

Cc E-Mail:

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY - Affix Workorder/Login Label Here



Scan QR Code for instructions

Specify Container Size **

**Container Size: (1) 1L (2) 500mL (3) 250mL (4) 125mL (5) 100mL (6) 40mL Vial (7) EnCore (8) TerraCore (9) 90mL (10) Other

Identify Container Preservative Type**

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Analysis Requested

Proj. Mgr:

Carolyne Trout

AcctNum / Client ID:

Table #:

Profile / Template:

47476

Prelog / Bottle Ord. ID:

EZ 3168008

Sample Comment

010

011

012

Equipment Blank - PFAS ID NPW

PFAS ID NPW

Customer Remarks / Special Conditions / Possible Hazards:

Additional Instructions from Pace®:

Collected By: Anna Ballo

Signature: Anna Ballo

Date/Time: 11/13/24 1600

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

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Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Relinquished by/Company: (Signature)

Coolers: 7

Thermometer ID: 79

Correction Factor (°C): 0

Obs. Temp. (°C): 1.9

Corrected Temp. (°C): 1.9

On Ice: y

Tracking Number: 11/13/24 850

Date/Time: 11/13/24 850

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Delivered by: [] In-Person [] Courier

[] FedEx [] UPS [] Other

Page: 1 of 3

ENV-FRM-CORQ-0019_v02_110123 ©

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: ARCADIS - OH

PROJECT #:

WO#: 10715474

COURIER: ☐ Client ☐ Commercial ☒ FedEx ☐ Pace
☐ Speedee ☐ UPS ☐ USPS

PM: CT1

Due Date: 12/06/24

CLIENT: Arcadis-OH

TRACKING NUMBER: 7151 6120 0068 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO Seals Intact: ☐ YES ☒ NO Biological Tissue Frozen: ☐ YES ☐ NO ☒ N/A
Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☒ None ☐ Other Temp Blank: ☒ YES ☐ NO Type of Ice: ☐ Blue ☐ Dry ☒ Wet
Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☒ T4 (0402) ☐ T5 (0178) ☐ T6 (0235)
☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710) ☐ Melted ☐ None

Did Samples Originate in West Virginia: ☐ YES ☒ NO	Were All Container Temps taken: ☐ YES ☐ NO ☒ N/A
Correction Factor: <u>0</u> Cooler Temp Read w/Temp Blank: <u>1.9</u> °C	Average Corrected Temp (no Temp Blank Only): _____ °C
Cooler Temp Corrected w/Temp Blank: <u>1.9</u> °C	☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container

USDA Regulated Soil: ☒ N/A - (Water Sample/Other (describe): _____)	Initials & Date of Person Examining Contents: <u>JW 11/13/24</u>
Did Samples originate from one of the following states (check maps) - AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☐ NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☐ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): ☐ DULUTH ☒ MINNEAPOLIS ☐ VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?	☒	☐	☐	1.								
Chain of Custody Relinquished?	☒	☐	☐	2.								
Sampler Name and/or Signature on COC?	☒	☐	☐	3.								
Samples Arrived within Hold Time?	☒	☐	☐	4. If Fecal: ☐ <8 hrs ☐ >8 hr, <24 hr ☐ No								
Short Hold Time Analysis (<72 hr)?	☐	☒	☐	5. ☐ BOD / cBOD ☐ Fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/E. coli ☐ Other: _____								
Rush Turn Around Time Requested?	☐	☒	☐	6.								
Sufficient Sample Volume?	☒	☐	☐	7.								
Correct Containers Used?	☒	☐	☐	8.								
- Pace Containers Used?	☒	☐	☐									
Containers Intact?	☒	☐	☐	9.								
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☒	10. Is sediment visible in the dissolved container: ☐ YES ☐ NO								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: ☐ Oil ☐ Soil ☒ Water ☐ Other	☒	☐	☐	11. If NO, write ID/Date/Time of container below: ☐ See Exceptions form ENV-FRM-MIN4-0142								
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.	☐	☐	☒	12. Sample #: ☐ HNO ₃ ☐ H ₂ SO ₄ ☐ NaOH ☐ Zinc Acetate Positive for Residual Chlorine: ☐ YES ☐ NO pH Paper Lot # <table border="1" style="width: 100%;"> <tr> <th>Residual Chlorine</th> <th>0-6 Roll</th> <th>0-6 Strip</th> <th>0-14 Strip</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> ☐ See Exceptions form ENV-FRM-MIN4-0142	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip				
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip									
Headspace in Methyl Mercury Container?	☐	☐	☒	13.								
Extra labels present on soil VOA or WIDRO containers?	☐	☐	☒	14.								
Headspace in VOA Vials (greater than 6mm)?	☐	☐	☒	☐ See Exceptions form ENV-FRM-MIN4-0140								
Trip Blanks Present?	☐	☐	☒	15.								
Trip Blank Custody Seals Present?	☐	☐	☒	Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION

FIELD DATA REQUIRED: ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Carolynne Trout

Date: 11/13/24

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled By: JZW Line: 2



Analytical Laboratory Report

Report ID: S68390.01(01)
Generated on 11/18/2024

Report to
Attention: Lexi Nickerson
Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:
Email: Alexis.Nickerson@arcadis.com

Additional Contacts: Ian Drost, Tiffany Linder

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S68390.01-S68390.08
Project: 30214041.00005 / Racer PNC
Collected Date(s): 11/07/2024 - 11/08/2024
Submitted Date/Time: 11/08/2024 15:50
Sampled by: Garrett Link
P.O. #: 30214041.00005

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
SM2540C	Standard Method 2540 C 2020
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003



Analytical Laboratory Report

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68390.01	MWW01-SEN03_GW-110724	Groundwater	11/07/24 11:15
S68390.02	MW-01-17_GW-110724	Groundwater	11/07/24 12:20
S68390.03	TW-MD-05_GW-110724	Groundwater	11/07/24 15:50
S68390.04	MWW1-02_GW-110724	Groundwater	11/07/24 14:20
S68390.05	SEEP-VAULT_GW-110724	Groundwater	11/07/24 16:10
S68390.06	MWM30-01_GW-110824	Groundwater	11/08/24 11:05
S68390.07	TRIP BLANK	Groundwater	11/08/24 00:01
S68390.08	DUP-02_GW-110824	Groundwater	11/08/24 00:01



Analytical Laboratory Report

Lab Sample ID: S68390.01
Sample Tag: MWW01-SEN03_GW-110724
Collected Date/Time: 11/07/2024 11:15
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,420	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:21, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	20.6	0.02		mg/L	5	7439-89-6	
Manganese	0.554	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68390.02
Sample Tag: MW-01-17_GW-110724
Collected Date/Time: 11/07/2024 12:20
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,460	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:22, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	3.57	0.02		mg/L	5	7439-89-6	
Manganese	0.314	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68390.03
Sample Tag: TW-MD-05_GW-110724
Collected Date/Time: 11/07/2024 15:50
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,740	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:23, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	7.49	0.02		mg/L	5	7439-89-6	
Manganese	0.310	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68390.04
Sample Tag: MWW1-02_GW-110724
Collected Date/Time: 11/07/2024 14:20
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,250	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:25, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	29.0	0.02		mg/L	5	7439-89-6	
Manganese	0.844	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68390.05
Sample Tag: SEEP-VAULT_GW-110724
Collected Date/Time: 11/07/2024 16:10
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,680	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:26, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	13.0	0.02		mg/L	5	7439-89-6	
Manganese	0.463	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68390.06
Sample Tag: MWM30-01_GW-110824
Collected Date/Time: 11/08/2024 11:05
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 17:28, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68390.06 (continued)
Sample Tag: MWM30-01_GW-110824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 17:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68390.07
Sample Tag: TRIP BLANK
Collected Date/Time: 11/08/2024 00:01
Matrix: Groundwater
COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 15:32, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68390.07 (continued)
Sample Tag: TRIP BLANK

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 15:32, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68390.08

Sample Tag: DUP-02_GW-110824

Collected Date/Time: 11/08/2024 00:01

Matrix: Groundwater

COC Reference: 176248

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 17:52, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68390.08 (continued)

Sample Tag: DUP-02_GW-110824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 17:52, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID:S68390

Client:ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041.00005 / Racer PNC

Submitted: 11/08/2024 15:50 Login User: MMC

Attention: Lexi Nickerson

Address: Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 5.3
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ No ☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68390 Submitted: 11/08/2024 15:50

Client: ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041.00005 / Racer PNC

Attention: Lexi Nickerson

Address: Arcadis US, Inc.

28550 Cabot Drive, Suite 500

Novi, MI 48377

Initial Preservation Check: 11/08/2024 16:42 MMC

Preservation Recheck (E200.8): N/A

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68390.01	125mL Plastic HNO3	<2			
S68390.02	125mL Plastic HNO3	<2			
S68390.03	125mL Plastic HNO3	<2			
S68390.04	125mL Plastic HNO3	<2			
S68390.05	125mL Plastic HNO3	<2			



2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

176248

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Lexi Nickerson			
COMPANY Arcadis			
ADDRESS 28550 Cabot Dr Ste 500			
CITY Novi		STATE MI	ZIP CODE 48347
PHONE NO. 614.985.9163	CELL NO.	P.O. NO. 30214041.00005	QUOTE NO.
E-MAIL ADDRESS alexis.nickerson@arcadis.com			

CONTACT NAME		☐ SAME
COMPANY		
ADDRESS		
CITY	STATE	ZIP CODE
PHONE NO.	E-MAIL ADDRESS	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME 30214041.00005 / RACER PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Garrett Link / [Signature]
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR WS=WASTE

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives										Special Instructions		
	DATE	TIME				NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	Site Specific Inorganics (200.8 & 35M2540C)					
68390.01	11/7/24	1115	MWW01-SEN03-GW-110724	GW	2	1		1						X				1,250mL HDPE & 1,125mL HNO ₃
.02	11/7/24	1220	MW-01-17-GW-110724	GW	2	1		1						X				
.03	11/7/24	1550	TW-MD-05-GW-110724	GW	2	1		1						X				
.04	11/7/24	1420	MWW1-02-GW-110724	GW	2	1		1						X				
.05	11/7/24	1610	SEEP-VAULT-GW-110724	GW	2	1		1						X				
.06	11/8/24	1105	MWM30-01-GW-110824	GW	3		3								X			3 VOAs
.07	11/8/24	—	TRIP BLANK	GW	3		3								X			
.08	11/8/24	—	DUP-02-0110824	GW	3		3								X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION [Signature] / Arcadis	DATE 11/8/24	TIME 1202
RECEIVED BY: SIGNATURE/ORGANIZATION [Signature]	DATE 11/8/24	TIME 1800
RELINQUISHED BY: SIGNATURE/ORGANIZATION [Signature]	DATE 11/8/24	TIME 1515
RECEIVED BY: SIGNATURE/ORGANIZATION [Signature]	DATE 11/8/24	TIME 1550

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
NOTES:		TEMP. ON ARRIVAL 5.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



Analytical Laboratory Report

Report ID: S68389.01(01)
Generated on 11/14/2024

Report to
Attention: Lexi Nickerson
Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:
Email: Alexis.Nickerson@arcadis.com

Additional Contacts: Ian Drost, Tiffany Linder

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S68389.01-S68389.13
Project: 30214041.006 / Racer PNC
Collected Date(s): 11/05/2024 - 11/07/2024
Submitted Date/Time: 11/08/2024 15:50
Sampled by: Alaina Ralko
P.O. #: 30214041.006

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
SM2540C	Standard Method 2540 C 2020
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (13 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68389.01	MWF7-02-GW-110524	Groundwater	11/05/24 11:45
S68389.02	MWOS-01-GW-110524	Groundwater	11/05/24 13:45
S68389.03	MWM2-28-GW110524	Groundwater	11/05/24 15:00
S68389.04	MWM2-22-GW-110524	Groundwater	11/05/24 16:10
S68389.05	MWM2-22-GW-110524 MS	Groundwater	11/05/24 16:10
S68389.06	MWM2-22-GW-110524 MSD	Groundwater	11/05/24 16:10
S68389.07	TW-10-01-GW-110524	Groundwater	11/05/24 17:05
S68389.08	MWF12-02R-GW-110724	Groundwater	11/07/24 11:10
S68389.09	MWF12-01R-GW-110724	Groundwater	11/07/24 12:45
S68389.10	MWW1-06-GW-110724	Groundwater	11/07/24 14:50
S68389.11	MWOS-04-GW-110724	Groundwater	11/07/24 16:20
S68389.12	DUP-01-110724	Groundwater	11/07/24 00:01
S68389.13	TRIP BLANK	Water	11/07/24 00:01



Analytical Laboratory Report

Lab Sample ID: S68389.01
Sample Tag: MWLF7-02-GW-110524
Collected Date/Time: 11/05/2024 11:45
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/11/24 15:41, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	176	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S68389.02

Sample Tag: MWOS-01-GW-110524

Collected Date/Time: 11/05/2024 13:45

Matrix: Groundwater

COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
6	40mL Glass	HCL	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR
1	250mL Plastic	None	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/11/24 16:29, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,210	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:16, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	1.63	0.02		mg/L	5	7439-89-6	
Manganese	0.293	0.005		mg/L	5	7439-96-5	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/11/24 16:06, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	26	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 16:19, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	



Analytical Laboratory Report

Lab Sample ID: S68389.02 (continued)

Sample Tag: MWOS-01-GW-110524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 16:19, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.03

Sample Tag: MWM2-28-GW110524

Collected Date/Time: 11/05/2024 15:00

Matrix: Groundwater

COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 16:42, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.03 (continued)
Sample Tag: MWM2-28-GW110524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 16:42, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.04
Sample Tag: MWM2-22-GW-110524
Collected Date/Time: 11/05/2024 16:10
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 15:55, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	12	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	18	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	11	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	5	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	2	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.04 (continued)
Sample Tag: MWM2-22-GW-110524

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 15:55, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.05
Sample Tag: MWM2-22-GW-110524 MS
Collected Date/Time: 11/05/2024 16:10
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 13:35, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	46	10		ug/L	1	60-29-7	1
Acetone	Not detected	50		ug/L	1	67-64-1	1
Methyl iodide	26	1		ug/L	1	74-88-4	1
Carbon disulfide	49	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	48	5		ug/L	1	1634-04-4	1
Acrylonitrile	45	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	43	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	44	5		ug/L	1	75-71-8	1
Chloromethane	39	5		ug/L	1	74-87-3	1
Vinyl chloride	56	1		ug/L	1	75-01-4	1
Bromomethane	33	5		ug/L	1	74-83-9	1
Chloroethane	41	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	47	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	47	1		ug/L	1	75-35-4	1
Methylene chloride	48	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	49	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	64	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	56	1		ug/L	1	156-59-2	1
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	1
Chloroform	49	1		ug/L	1	67-66-3	1
Bromochloromethane	50	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	51	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	51	1		ug/L	1	56-23-5	1
Benzene	49	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	48	1		ug/L	1	107-06-2	1
Trichloroethene	53	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	48	1		ug/L	1	78-87-5	1
Bromodichloromethane	49	1		ug/L	1	75-27-4	1
Dibromomethane	51	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	49	1		ug/L	1	10061-01-5	1
Toluene	50	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	49	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	48	1		ug/L	1	79-00-5	1
Tetrachloroethene	48	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68389.05 (continued)
Sample Tag: MWM2-22-GW-110524 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 13:35, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	54	1		ug/L	1	110-57-6	1
Dibromochloromethane	52	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	50	1		ug/L	1	106-93-4	1
Chlorobenzene	51	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	53	1		ug/L	1	630-20-6	1
Ethylbenzene	51	1		ug/L	1	100-41-4	1
p,m-Xylene	103	2		ug/L	1		1
o-Xylene	51	1		ug/L	1	95-47-6	1
Styrene	51	1		ug/L	1	100-42-5	1
Isopropylbenzene	51	5		ug/L	1	98-82-8	1
Bromoform	53	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	50	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	51	1		ug/L	1	96-18-4	1
n-Propylbenzene	51	1		ug/L	1	103-65-1	1
Bromobenzene	52	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	52	1		ug/L	1	108-67-8	1
tert-Butylbenzene	51	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1		ug/L	1	95-63-6	1
sec-Butylbenzene	50	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	51	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	51	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	51	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	50	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	49	1		ug/L	1	104-51-8	1
Hexachloroethane	52	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	51	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	51	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	51	5		ug/L	1	87-61-6	1
Naphthalene	49	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	51	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68389.06
Sample Tag: MWM2-22-GW-110524 MSD
Collected Date/Time: 11/05/2024 16:10
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 13:59, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	48	10		ug/L	1	60-29-7	1
Acetone	Not detected	50		ug/L	1	67-64-1	1
Methyl iodide	25	1		ug/L	1	74-88-4	1
Carbon disulfide	48	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	49	5		ug/L	1	1634-04-4	1
Acrylonitrile	45	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	44	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	44	5		ug/L	1	75-71-8	1
Chloromethane	39	5		ug/L	1	74-87-3	1
Vinyl chloride	55	1		ug/L	1	75-01-4	1
Bromomethane	31	5		ug/L	1	74-83-9	1
Chloroethane	41	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	48	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	47	1		ug/L	1	75-35-4	1
Methylene chloride	48	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	48	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	63	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	55	1		ug/L	1	156-59-2	1
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	1
Chloroform	49	1		ug/L	1	67-66-3	1
Bromochloromethane	50	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	50	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1
2-Hexanone	50	50		ug/L	1	591-78-6	1
Carbon tetrachloride	50	1		ug/L	1	56-23-5	1
Benzene	48	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	47	1		ug/L	1	107-06-2	1
Trichloroethene	51	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	48	1		ug/L	1	78-87-5	1
Bromodichloromethane	49	1		ug/L	1	75-27-4	1
Dibromomethane	51	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	48	1		ug/L	1	10061-01-5	1
Toluene	49	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	48	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	47	1		ug/L	1	79-00-5	1
Tetrachloroethene	47	1		ug/L	1	127-18-4	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68389.06 (continued)

Sample Tag: MWM2-22-GW-110524 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 13:59, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	46	1		ug/L	1	110-57-6	1
Dibromochloromethane	50	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	50	1		ug/L	1	106-93-4	1
Chlorobenzene	50	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	51	1		ug/L	1	630-20-6	1
Ethylbenzene	50	1		ug/L	1	100-41-4	1
p,m-Xylene	101	2		ug/L	1		1
o-Xylene	50	1		ug/L	1	95-47-6	1
Styrene	50	1		ug/L	1	100-42-5	1
Isopropylbenzene	50	5		ug/L	1	98-82-8	1
Bromoform	51	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	50	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	50	1		ug/L	1	96-18-4	1
n-Propylbenzene	50	1		ug/L	1	103-65-1	1
Bromobenzene	51	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	51	1		ug/L	1	108-67-8	1
tert-Butylbenzene	50	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	51	1		ug/L	1	95-63-6	1
sec-Butylbenzene	49	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	50	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	50	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	50	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	50	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	49	1		ug/L	1	526-73-8	1
n-Butylbenzene	49	1		ug/L	1	104-51-8	1
Hexachloroethane	51	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	52	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	52	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	53	5		ug/L	1	87-61-6	1
Naphthalene	51	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	55	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68389.07
Sample Tag: TW-10-01-GW-110524
Collected Date/Time: 11/05/2024 17:05
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 17:56, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	3	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S68389.08

Sample Tag: MWF12-02R-GW-110724

Collected Date/Time: 11/07/2024 11:10

Matrix: Groundwater

COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR
1	250mL Plastic	None	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/11/24 16:29, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	732	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:17, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.29	0.02		mg/L	5	7439-89-6	
Manganese	0.733	0.005		mg/L	5	7439-96-5	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 17:05, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	



Analytical Laboratory Report

Lab Sample ID: S68389.08 (continued)

Sample Tag: MWF12-02R-GW-110724

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/11/24 17:05, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.09
Sample Tag: MWF12-01R-GW-110724
Collected Date/Time: 11/07/2024 12:45
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 18:21, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	15	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S68389.10
Sample Tag: MWW1-06-GW-110724
Collected Date/Time: 11/07/2024 14:50
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	5.3	IR
1	250mL Plastic	None	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/11/24 16:29, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	514	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:18, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	5.27	0.02		mg/L	5	7439-89-6	
Manganese	0.270	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68389.11
Sample Tag: MWOS-04-GW-110724
Collected Date/Time: 11/07/2024 16:20
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR
1	125mL Plastic	HNO3	Yes	5.3	IR
1	250mL Plastic	None	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	
Metal Digestion	Completed	SW3015A	11/14/24 10:10	CCM	

Inorganics

Method: SM2540C, Run Date: 11/11/24 16:29, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,510	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 13:20, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	6.95	0.02		mg/L	5	7439-89-6	
Manganese	0.192	0.005		mg/L	5	7439-96-5	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 18:46, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	34	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S68389.12
Sample Tag: DUP-01-110724
Collected Date/Time: 11/07/2024 00:01
Matrix: Groundwater
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/12/24 10:55	NDK	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 19:11, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	13	1		ug/L	1	123-91-1	



Analytical Laboratory Report

Lab Sample ID: S68389.13
Sample Tag: TRIP BLANK
Collected Date/Time: 11/07/2024 00:01
Matrix: Water
COC Reference: 176245

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40mL Glass	HCL	Yes	5.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/13/24 11:20	NDK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/12/24 14:29, Analyst: ACK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68389.13 (continued)
Sample Tag: TRIP BLANK

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/12/24 14:29, Analyst: ACK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID:S68389

Client:ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041.006 / Racer PNC

Submitted: 11/08/2024 15:50 Login User: PFD

Attention: Lexi Nickerson

Address: Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 5.3
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ No ☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68389 Submitted: 11/08/2024 15:50

Client: ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041.006 / Racer PNC

Attention: Lexi Nickerson

Address: Arcadis US, Inc.

28550 Cabot Drive, Suite 500

Novi, MI 48377

Initial Preservation Check: 11/08/2024 16:44 PFD

Preservation Recheck (E200.8): N/A

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68389.02	125mL Plastic HNO3	<2			
S68389.08	125mL Plastic HNO3	<2			
S68389.10	125mL Plastic HNO3	<2			
S68389.11	125mL Plastic HNO3	<2			



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Phone (517) 332-0167 Fax (517) 332-4034
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C.O.C. PAGE # _____ OF _____

176245

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Lexi Nicholson	
COMPANY Arccadis	
ADDRESS 28550 Cabot Dr. #500	
CITY Novi	STATE MI ZIP CODE 48377
PHONE NO.	CELL NO.
E-MAIL ADDRESS alexis.nicholson@arccadis.com affany.linder@arccadis.com	
P.O. NO.	
QUOTE NO.	

CONTACT NAME Account Payable		☐ SAME
COMPANY Arccadis		
ADDRESS 630 Plaza Dr. #600		
CITY Highlands Ranch	STATE CO	ZIP CODE 80129
PHONE NO.	E-MAIL ADDRESS accounts payable.administration@arccadis.com	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME 30214041 / Baker PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Alanna Baker / Alanna Baker

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR WS=WASTE

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	PRESERVATION			Other	Special Instructions
	DATE	TIME											1,1-D	VOCs	Mn, Fe		
68389.01	11/5/24	1145	MWF7-02-GW-110524	GW	3		/						X				
.02	11/5/24	1345	MW05-01-GW-110524	GW	8	1	6	1					X	X	X		
.03	11/5/24	1500	MWM2-28-GW-110524	GW	3		3							X			
.04/.05/.06	11/5/24	1610	MWM2-22-GW-110524	GW	9		9							X			Run MS/MSD
.07	11/5/24	1705	TW-10-01-GW-110524	GW	3		3						X				
.08	11/7/24	1110	MWF12-02R-GW-110724	GW	5	1	3	1						X	X		
.09	11/7/24	1245	MWF12-01R-GW-110724	GW	3		3						X				
.10	11/7/24	1450	MWW1-06-GW-110724	GW	2	1		1							X		
.11	11/7/24	1620	MW05-04-GW-110724	GW	5	1	3	1					X		X		
.12	11/7/24	—	DUP-01-110724	GW	3		3						X				
.13			Trip Blank														

RELINQUISHED BY: SIGNATURE/ORGANIZATION Alanna Baker	☒ Sampler	DATE 11/8/24	TIME 1200
RECEIVED BY: SIGNATURE/ORGANIZATION Ilana		DATE 11/8/24	TIME 1:00
RELINQUISHED BY: SIGNATURE/ORGANIZATION Alanna Baker		DATE 11/8/24	TIME 15:50
RECEIVED BY: SIGNATURE/ORGANIZATION M. Alcott		DATE 11/8/24	TIME 1550

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE 11/8/24	TIME 1200
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 11/8/24	TIME 1:00
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
NOTES:		TEMP. ON ARRIVAL 5.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



Analytical Laboratory Report

Report ID: S68472.01(01)
Generated on 11/26/2024

Report to
Attention: Lexi Nickerson
Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:
Email: Alexis.Nickerson@arcadis.com

Additional Contacts: Ian Drost, Tiffany Linder

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S68472.01
Project: 30214041 / Racer PNC Task 6
Collected Date(s): 11/08/2024
Submitted Date/Time: 11/12/2024 17:10
Sampled by: Alaina Raiko + Garrett Link
P.O. #: 30214041

Table of Contents

- Cover Page (Page 1)
- General Report Notes (Page 2)
- Report Narrative (Page 2)
- Laboratory Accreditations (Page 3)
- Qualifier Descriptions (Page 3)
- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- Sample Summary (Page 5)


Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

Report only sample .01 per client request

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
N/A	Not Applicable
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003



Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68472.01	MWOS-10_GW-110824	Groundwater	11/08/24 13:20



Analytical Laboratory Report

Lab Sample ID: S68472.01

Sample Tag: MWOS-10_GW-110824

Collected Date/Time: 11/08/2024 13:20

Matrix: Groundwater

COC Reference: 176246

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 18:28, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	1	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	3	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	6	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.01 (continued)
Sample Tag: MWOS-10_GW-110824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 18:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID:S68472

Client:ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041 / Racer PNC Task 6

Submitted: 11/12/2024 17:10 Login User: PFD

Attention: Lexi Nickerson

Address: Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 5.4
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☐ Yes ☒ No ☐ N/A	COC adequately filled out Analyte list not provided for metals lists and Site Specific list
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ No ☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68472 Submitted: 11/12/2024 17:10

Client: ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041 / Racer PNC Task 6

Attention: Lexi Nickerson

Address: Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Initial Preservation Check: 11/13/2024 10:09 PFD

Preservation Recheck (E200.8): N/A

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68472.02	125mL Plastic HNO3	<2			
S68472.03	125mL Plastic HNO3	<2			
S68472.04	125mL Plastic HNO3	<2			
S68472.05	125mL Plastic HNO3	<2			
S68472.06	125mL Plastic HNO3	<2			
S68472.07	125mL Plastic HNO3	<2			
S68472.08	125mL Plastic HNO3	<2			
S68472.09	125mL Plastic HNO3	<2			
S68472.10	125mL Plastic HNO3	<2			
S68472.11	125mL Plastic HNO3	<2			
S68472.12	125mL Plastic HNO3	<2			
S68472.13	125mL Plastic HNO3	<2			
S68472.17	125mL Plastic HNO3	<2			
S68472.20	125mL Plastic HNO3	<2			
S68472.21	125mL Plastic HNO3	<2			



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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 4

176246

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME <u>Alexis Nickerson</u>			
COMPANY <u>Arcadis</u>			
ADDRESS <u>28550 Cabot Dr #500</u>			
CITY <u>NOVI</u>		STATE <u>MI</u>	ZIP CODE <u>48377</u>
PHONE NO.	CELL NO.	P.O. NO.	
E-MAIL ADDRESS <u>alexis.nickerson@arcadis.com</u> <u>lillian.linder@arcadis.com</u>		QUOTE NO.	

CONTACT NAME <u>Accounts Payable</u>		☐ SAME	
COMPANY <u>Arcadis</u>			
ADDRESS <u>630 Plaza Dr #600</u>			
CITY <u>Highlands Ranch</u>		STATE <u>CO</u>	ZIP CODE <u>80129</u>
PHONE NO.	E-MAIL ADDRESS <u>accounts payable.administration@arcadis.com</u>		

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME <u>30214041/Baker DNC-task 6</u>	SAMPLER(S) - PLEASE PRINT/SIGN NAME <u>Alicia Balke/Alicia Balke</u>
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID	# Containers & Preservatives
CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR WS=WASTE	

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives																		Certifications ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES Project Locations ☐ Detroit ☐ New York ☐ Other _____ Special Instructions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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RELINQUISHED BY: <u>Alicia Balke/Arcadis</u>	☒ Sampler	DATE <u>11/17/24</u>	TIME <u>1500</u>
SIGNATURE/ORGANIZATION <u>[Signature]</u>		DATE <u>11/18/24</u>	TIME <u>1510</u>
RECEIVED BY: <u>[Signature]</u>		DATE <u>11/18/24</u>	TIME <u>1710</u>
SIGNATURE/ORGANIZATION <u>[Signature]</u>			

RELINQUISHED BY: <u>[Signature]</u>	DATE <u>11/18/24</u>	TIME <u>1510</u>	
SIGNATURE/ORGANIZATION <u>[Signature]</u>			
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>5.4</u>
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 2 OF 4

159489

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Lexi Nickerson	
COMPANY Arcadis	
ADDRESS 28550 Cabot Dr Ste 500	
CITY Novi	STATE MI
ZIP CODE 48377	
PHONE NO. 614.985.9163	CELL NO.
E-MAIL ADDRESS alexis.nickerson@arcadis.com	P.O. NO. 30214041-00005
	QUOTE NO.

CONTACT NAME		☐ SAME
COMPANY		
ADDRESS		
CITY	STATE	ZIP CODE
PHONE NO.	E-MAIL ADDRESS	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME 30214041-00005 / RACER-PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Garrett Link / [Signature]
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	Site S (200.1)	VOCs	1,4-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</

RELINQUISHED BY: SIGNATURE/ORGANIZATION [Signature] / Arcadis	☒ Sampler	DATE 11/8/24	TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION Alanna Baker / Arcadis		DATE 11/8/24	TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION [Signature]		DATE 11/12/24	TIME 1800
RECEIVED BY: SIGNATURE/ORGANIZATION [Signature]		DATE 11/12/24	TIME 1710

RELINQUISHED BY: SIGNATURE/ORGANIZATION Alanna Baker / Arcadis	DATE 11/12/24	TIME 1500
RECEIVED BY: SIGNATURE/ORGANIZATION [Signature]	DATE 11/12/24	TIME 1510
SEAL NO.	SEAL INTACT ☐ YES ☐ NO	INITIALS
SEAL NO.	SEAL INTACT ☐ YES ☐ NO	INITIALS
NOTES:		TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



Analytical Laboratory Report

Report ID: S68472.02(01)
Generated on 11/26/2024

Report to
Attention: Lexi Nickerson
Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:
Email: Alexis.Nickerson@arcadis.com

Additional Contacts: Ian Drost, Tiffany Linder

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S68472.02-S68472.05, S68472.13-S68472.21
Project: 30214041 / Racer PNC Task 6
Collected Date(s): 11/08/2024 - 11/12/2024
Submitted Date/Time: 11/12/2024 17:10
Sampled by: Alaina Raiko + Garrett Link
P.O. #: 30214041

Table of Contents

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- Sample Summary (Page 5)


Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Starred (*) analytes are not NY NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

Do not report samples .01, or .06-.13 per client request

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



Analytical Laboratory Report

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E608.3	EPA Method 608.3 December 2016
N/A	Not Applicable
SM2540C	Standard Method 2540 C 2020
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003
SW8260B - SIM	SW 846 Method 8260B Revision 2 December 1996 SIMs



Analytical Laboratory Report

Sample Summary (13 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S68472.02	MWW1-04_GW-110824	Groundwater	11/08/24 13:20
S68472.03	MW05-02_GW-110824	Groundwater	11/08/24 14:40
S68472.04	MW05-02_GW-110824 MS	Groundwater	11/08/24 14:40
S68472.05	MW05-02_GW-110824 MSD	Groundwater	11/08/24 14:40
S68472.13	DUP-04_111124	Groundwater	11/11/24 00:01
S68472.14	MWM16-02_GW-111224	Groundwater	11/12/24 10:55
S68472.15	MWM16-37_GW-111224	Groundwater	11/12/24 12:00
S68472.16	MWM-32-09_GW-111224	Groundwater	11/12/24 13:05
S68472.17	TW-MD-02_GW-111224	Groundwater	11/12/24 14:05
S68472.18	DUP-05_111224	Groundwater	11/12/24 00:01
S68472.19	TRIP BLANK	Water	11/12/24 00:01
S68472.20	MWOS-05_GW-110824	Groundwater	11/08/24 15:00
S68472.21	DUP-03-110824	Groundwater	11/08/24 00:01



Analytical Laboratory Report

Lab Sample ID: S68472.02
Sample Tag: MWW1-04_GW-110824
Collected Date/Time: 11/08/2024 13:20
Matrix: Groundwater
COC Reference: 159489

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/19/24 07:30	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	500	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/19/24 09:31, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	Not detected	0.02		mg/L	5	7439-89-6	
Manganese	Not detected	0.005		mg/L	5	7439-96-5	



Analytical Laboratory Report

Lab Sample ID: S68472.03

Sample Tag: MW05-02_GW-110824

Collected Date/Time: 11/08/2024 14:40

Matrix: Groundwater

COC Reference: 159489

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
6	40mL Glass	HCL	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR
1	250mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	
Metal Digestion	Completed	SW3015A	11/19/24 07:30	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,340	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/19/24 09:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.66	0.02		mg/L	5	7439-89-6	
Manganese	0.401	0.005		mg/L	5	7439-96-5	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 19:36, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	7	1		ug/L	1	123-91-1	

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 14:59, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	



Analytical Laboratory Report

Lab Sample ID: S68472.03 (continued)

Sample Tag: MW05-02_GW-110824

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 14:59, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.04

Sample Tag: MW05-02_GW-110824 MS

Collected Date/Time: 11/08/2024 14:40

Matrix: Groundwater

COC Reference: 159489

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
6	40mL Glass	HCL	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR
1	250mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	
Metal Digestion	Completed	SW3015A	11/19/24 07:30	CCM	

Metals

Method: E200.8, Run Date: 11/19/24 09:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	1.01	0.02		mg/L	5	7439-89-6	
Manganese	0.664	0.005		mg/L	5	7439-96-5	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 14:34, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	50	1		ug/L	1	123-91-1	1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 13:02, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	51	10		ug/L	1	60-29-7	1
Acetone	Not detected	50		ug/L	1	67-64-1	1
Methyl iodide	36	1		ug/L	1	74-88-4	1
Carbon disulfide	52	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	52	5		ug/L	1	1634-04-4	1
Acrylonitrile	49	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	48	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	48	5		ug/L	1	75-71-8	1
Chloromethane	45	5		ug/L	1	74-87-3	1
Vinyl chloride	47	1		ug/L	1	75-01-4	1
Bromomethane	38	5		ug/L	1	74-83-9	1
Chloroethane	45	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	50	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	49	1		ug/L	1	75-35-4	1
Methylene chloride	52	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	52	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	52	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	50	1		ug/L	1	156-59-2	1
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	1
Chloroform	53	1		ug/L	1	67-66-3	1
Bromochloromethane	54	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	52	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	51	50		ug/L	1	108-10-1	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68472.04 (continued)

Sample Tag: MW05-02_GW-110824 MS

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 13:02, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	Not detected	50		ug/L	1	591-78-6	1
Carbon tetrachloride	51	1		ug/L	1	56-23-5	1
Benzene	50	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	48	1		ug/L	1	107-06-2	1
Trichloroethene	49	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	50	1		ug/L	1	78-87-5	1
Bromodichloromethane	52	1		ug/L	1	75-27-4	1
Dibromomethane	53	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	51	1		ug/L	1	10061-01-5	1
Toluene	52	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	52	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	51	1		ug/L	1	79-00-5	1
Tetrachloroethene	49	1		ug/L	1	127-18-4	1
trans-1,4-Dichloro-2-butene	55	1		ug/L	1	110-57-6	1
Dibromochloromethane	54	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	52	1		ug/L	1	106-93-4	1
Chlorobenzene	52	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	54	1		ug/L	1	630-20-6	1
Ethylbenzene	52	1		ug/L	1	100-41-4	1
p,m-Xylene	106	2		ug/L	1		1
o-Xylene	52	1		ug/L	1	95-47-6	1
Styrene	52	1		ug/L	1	100-42-5	1
Isopropylbenzene	52	5		ug/L	1	98-82-8	1
Bromoform	55	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	51	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	52	1		ug/L	1	96-18-4	1
n-Propylbenzene	52	1		ug/L	1	103-65-1	1
Bromobenzene	54	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	53	1		ug/L	1	108-67-8	1
tert-Butylbenzene	52	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	53	1		ug/L	1	95-63-6	1
sec-Butylbenzene	50	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	51	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	52	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	52	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	52	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	50	1		ug/L	1	104-51-8	1
Hexachloroethane	52	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	51	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	52	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	52	5		ug/L	1	87-61-6	1
Naphthalene	49	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	45	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68472.05

Sample Tag: MW05-02_GW-110824 MSD

Collected Date/Time: 11/08/2024 14:40

Matrix: Groundwater

COC Reference: 159489

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
6	40mL Glass	HCL	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR
1	250mL Plastic	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	
Metal Digestion	Completed	SW3015A	11/19/24 07:30	CCM	

Metals

Method: E200.8, Run Date: 11/19/24 09:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	0.89	0.02		mg/L	5	7439-89-6	
Manganese	0.648	0.005		mg/L	5	7439-96-5	

Organics - Volatiles

Method: SW8260B - SIM, Run Date: 11/13/24 14:59, Analyst: KAG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,4-Dioxane*	53	1		ug/L	1	123-91-1	1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 13:26, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	51	10		ug/L	1	60-29-7	1
Acetone	50	50		ug/L	1	67-64-1	1
Methyl iodide	35	1		ug/L	1	74-88-4	1
Carbon disulfide	50	5		ug/L	1	75-15-0	1
tert-Methyl butyl ether (MTBE)	52	5		ug/L	1	1634-04-4	1
Acrylonitrile	49	2		ug/L	1	107-13-1	1
2-Butanone (MEK)	48	25		ug/L	1	78-93-3	1
Dichlorodifluoromethane	48	5		ug/L	1	75-71-8	1
Chloromethane	45	5		ug/L	1	74-87-3	1
Vinyl chloride	47	1		ug/L	1	75-01-4	1
Bromomethane	40	5		ug/L	1	74-83-9	1
Chloroethane	46	5		ug/L	1	75-00-3	1
Trichlorofluoromethane	50	1		ug/L	1	75-69-4	1
1,1-Dichloroethene	49	1		ug/L	1	75-35-4	1
Methylene chloride	51	5		ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	52	1		ug/L	1	156-60-5	1
1,1-Dichloroethane	51	1		ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	50	1		ug/L	1	156-59-2	1
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	1
Chloroform	52	1		ug/L	1	67-66-3	1
Bromochloromethane	54	1		ug/L	1	74-97-5	1
1,1,1-Trichloroethane	52	1		ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68472.05 (continued)

Sample Tag: MW05-02_GW-110824 MSD

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 13:26, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
2-Hexanone	50	50		ug/L	1	591-78-6	1
Carbon tetrachloride	50	1		ug/L	1	56-23-5	1
Benzene	50	1		ug/L	1	71-43-2	1
1,2-Dichloroethane	49	1		ug/L	1	107-06-2	1
Trichloroethene	49	1		ug/L	1	79-01-6	1
1,2-Dichloropropane	50	1		ug/L	1	78-87-5	1
Bromodichloromethane	51	1		ug/L	1	75-27-4	1
Dibromomethane	53	5		ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	50	1		ug/L	1	10061-01-5	1
Toluene	51	1		ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	50	1		ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	50	1		ug/L	1	79-00-5	1
Tetrachloroethene	48	1		ug/L	1	127-18-4	1
trans-1,4-Dichloro-2-butene	49	1		ug/L	1	110-57-6	1
Dibromochloromethane	54	5		ug/L	1	124-48-1	1
1,2-Dibromoethane	53	1		ug/L	1	106-93-4	1
Chlorobenzene	53	1		ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	54	1		ug/L	1	630-20-6	1
Ethylbenzene	52	1		ug/L	1	100-41-4	1
p,m-Xylene	106	2		ug/L	1		1
o-Xylene	52	1		ug/L	1	95-47-6	1
Styrene	53	1		ug/L	1	100-42-5	1
Isopropylbenzene	53	5		ug/L	1	98-82-8	1
Bromoform	54	1		ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	52	1		ug/L	1	79-34-5	1
1,2,3-Trichloropropane	53	1		ug/L	1	96-18-4	1
n-Propylbenzene	53	1		ug/L	1	103-65-1	1
Bromobenzene	55	1		ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	53	1		ug/L	1	108-67-8	1
tert-Butylbenzene	52	1		ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	53	1		ug/L	1	95-63-6	1
sec-Butylbenzene	50	1		ug/L	1	135-98-8	1
p-Isopropyltoluene	51	5		ug/L	1	99-87-6	1
1,3-Dichlorobenzene	53	1		ug/L	1	541-73-1	1
1,4-Dichlorobenzene	53	1		ug/L	1	106-46-7	1
1,2-Dichlorobenzene	52	1		ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	50	1		ug/L	1	526-73-8	1
n-Butylbenzene	50	1		ug/L	1	104-51-8	1
Hexachloroethane	52	5		ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	52	5		ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	54	5		ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	53	5		ug/L	1	87-61-6	1
Naphthalene	51	5		ug/L	1	91-20-3	1
2-Methylnaphthalene	48	5		ug/L	1	91-57-6	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S68472.13

Sample Tag: DUP-04_111124

Collected Date/Time: 11/11/2024 00:01

Matrix: Groundwater

COC Reference: 176247

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	HNO3	Yes	5.4	IR
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/19/24 12:16	CTV	
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	
Metal Digestion	Completed	SW3015A	11/26/24 09:00	JRH	

Metals

Method: E200.8, Run Date: 11/26/24 13:17, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony*	Not detected	0.005		mg/L	5	7440-36-0	
Arsenic	Not detected	0.002		mg/L	5	7440-38-2	
Barium	0.035	0.005		mg/L	5	7440-39-3	
Beryllium	Not detected	0.001		mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005		mg/L	5	7440-43-9	
Chromium	Not detected	0.005		mg/L	5	7440-47-3	
Cobalt	Not detected	0.005		mg/L	5	7440-48-4	
Copper	Not detected	0.005		mg/L	5	7440-50-8	
Lead	Not detected	0.003		mg/L	5	7439-92-1	
Manganese	0.411	0.005		mg/L	5	7439-96-5	
Nickel	0.006	0.005		mg/L	5	7440-02-0	
Selenium	Not detected	0.005		mg/L	5	7782-49-2	
Silver	Not detected	0.0005		mg/L	5	7440-22-4	
Thallium	Not detected	0.002		mg/L	5	7440-28-0	
Vanadium	Not detected	0.005		mg/L	5	7440-62-2	
Zinc	0.020	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 11/19/24 17:01, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 19:15, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	



Analytical Laboratory Report

Lab Sample ID: S68472.13 (continued)

Sample Tag: DUP-04_111124

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 19:15, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	1	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	



Analytical Laboratory Report

Lab Sample ID: S68472.13 (continued)

Sample Tag: DUP-04_111124

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 19:15, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.14

Sample Tag: MWM16-02_GW-111224

Collected Date/Time: 11/12/2024 10:55

Matrix: Groundwater

COC Reference: 176297

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 19:38, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.14 (continued)
Sample Tag: MWM16-02_GW-111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 19:38, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.15

Sample Tag: MWM16-37_GW-111224

Collected Date/Time: 11/12/2024 12:00

Matrix: Groundwater

COC Reference: 176297

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 20:01, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.15 (continued)
Sample Tag: MWM16-37_GW-111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 20:01, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.16
Sample Tag: MWM-32-09_GW-111224
Collected Date/Time: 11/12/2024 13:05
Matrix: Groundwater
COC Reference: 176297

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 20:24, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.16 (continued)
Sample Tag: MWM-32-09_GW-111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 20:24, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.17
Sample Tag: TW-MD-02_GW-111224
Collected Date/Time: 11/12/2024 14:05
Matrix: Groundwater
COC Reference: 176297

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	11/14/24 08:55	CTV	
Metal Digestion	Completed	SW3015A	11/14/24 12:40	CCM	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,620	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/14/24 14:38, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	5.54	0.02		mg/L	5	7439-89-6	
Manganese	0.597	0.005		mg/L	5	7439-96-5	

Method: E245.1, Run Date: 11/14/24 15:52, Analyst: CTV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	



Analytical Laboratory Report

Lab Sample ID: S68472.18
Sample Tag: DUP-05_111224
Collected Date/Time: 11/12/2024 00:01
Matrix: Groundwater
COC Reference: 176297

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40mL Glass	HCL	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	11/14/24 10:57	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 20:48, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10		ug/L	1	60-29-7	
Acetone	Not detected	50		ug/L	1	67-64-1	
Methyl iodide	Not detected	1		ug/L	1	74-88-4	
Carbon disulfide	Not detected	5		ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5		ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2		ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25		ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5		ug/L	1	75-71-8	
Chloromethane	Not detected	5		ug/L	1	74-87-3	
Vinyl chloride	Not detected	1		ug/L	1	75-01-4	
Bromomethane	Not detected	5		ug/L	1	74-83-9	
Chloroethane	Not detected	5		ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1		ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1		ug/L	1	75-35-4	
Methylene chloride	Not detected	5		ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1		ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1		ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1		ug/L	1	156-59-2	
Tetrahydrofuran	Not detected	90		ug/L	1	109-99-9	
Chloroform	Not detected	1		ug/L	1	67-66-3	
Bromochloromethane	Not detected	1		ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1		ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50		ug/L	1	108-10-1	
2-Hexanone	Not detected	50		ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1		ug/L	1	56-23-5	
Benzene	Not detected	1		ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1		ug/L	1	107-06-2	
Trichloroethene	Not detected	1		ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1		ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1		ug/L	1	75-27-4	
Dibromomethane	Not detected	5		ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-01-5	
Toluene	Not detected	1		ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1		ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1		ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1		ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1		ug/L	1	110-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.18 (continued)
Sample Tag: DUP-05_111224

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 11/13/24 20:48, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5		ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1		ug/L	1	106-93-4	
Chlorobenzene	Not detected	1		ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1		ug/L	1	630-20-6	
Ethylbenzene	Not detected	1		ug/L	1	100-41-4	
p,m-Xylene	Not detected	2		ug/L	1		
o-Xylene	Not detected	1		ug/L	1	95-47-6	
Styrene	Not detected	1		ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5		ug/L	1	98-82-8	
Bromoform	Not detected	1		ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1		ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1		ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1		ug/L	1	103-65-1	
Bromobenzene	Not detected	1		ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1		ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1		ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1		ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1		ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5		ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1		ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1		ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1		ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1		ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1		ug/L	1	104-51-8	
Hexachloroethane	Not detected	5		ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5		ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5		ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5		ug/L	1	87-61-6	
Naphthalene	Not detected	5		ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5		ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S68472.19
Sample Tag: TRIP BLANK
Collected Date/Time: 11/12/2024 00:01
Matrix: Water
COC Reference: 176297

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	n/a	n/a	Yes	n/a	n/a

Other / Misc.

Method: , Run Date: 11/15/24 16:00, Analyst: JRM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
No Analyses*	Completed				1		



Analytical Laboratory Report

Lab Sample ID: S68472.20
Sample Tag: MWOS-05_GW-110824
Collected Date/Time: 11/08/2024 15:00
Matrix: Groundwater
COC Reference: 159489

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR
2	1L Amber	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/19/24 07:30	CCM	
Extraction, PCB*	Completed	E608.3	11/15/24 15:00	JWR	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	790	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/19/24 09:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	19.8	0.02		mg/L	5	7439-89-6	
Manganese	1.58	0.005		mg/L	5	7439-96-5	

Organics - PCBs/Pesticides

PCB, Method: E608.3, Run Date: 11/18/24 12:12, Analyst: JANB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PCB-1016	Not detected	0.1		ug/L	1	12674-11-2	
PCB-1221	Not detected	0.1		ug/L	1	11104-28-2	
PCB-1232	Not detected	0.1		ug/L	1	11141-16-5	
PCB-1242	Not detected	0.1		ug/L	1	53469-21-9	
PCB-1248	Not detected	0.1		ug/L	1	12672-29-6	
PCB-1254	Not detected	0.1		ug/L	1	11097-69-1	
PCB-1260	Not detected	0.1		ug/L	1	11096-82-5	
PCB, Total*	Not detected	0.1		ug/L	1	1336-36-3	



Analytical Laboratory Report

Lab Sample ID: S68472.21
Sample Tag: DUP-03-110824
Collected Date/Time: 11/08/2024 00:01
Matrix: Groundwater
COC Reference: 159489

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250mL Plastic	None	Yes	5.4	IR
1	125mL Plastic	HNO3	Yes	5.4	IR
2	1L Amber	None	Yes	5.4	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Metal Digestion	Completed	SW3015A	11/19/24 07:30	CCM	
Extraction, PCB*	Completed	E608.3	11/15/24 15:00	JWR	

Inorganics

Method: SM2540C, Run Date: 11/14/24 17:01, Analyst: SRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	852	50		mg/L	2		

Metals

Method: E200.8, Run Date: 11/19/24 09:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	20.2	0.02		mg/L	5	7439-89-6	
Manganese	1.53	0.005		mg/L	5	7439-96-5	

Organics - PCBs/Pesticides

PCB, Method: E608.3, Run Date: 11/18/24 12:30, Analyst: JANB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PCB-1016	Not detected	0.1		ug/L	1	12674-11-2	
PCB-1221	Not detected	0.1		ug/L	1	11104-28-2	
PCB-1232	Not detected	0.1		ug/L	1	11141-16-5	
PCB-1242	Not detected	0.1		ug/L	1	53469-21-9	
PCB-1248	Not detected	0.1		ug/L	1	12672-29-6	
PCB-1254	Not detected	0.1		ug/L	1	11097-69-1	
PCB-1260	Not detected	0.1		ug/L	1	11096-82-5	
PCB, Total*	Not detected	0.1		ug/L	1	1336-36-3	

Merit Laboratories Login Checklist

Lab Set ID:S68472

Client:ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041 / Racer PNC Task 6

Submitted: 11/12/2024 17:10 Login User: PFD

Attention: Lexi Nickerson

Address: Arcadis US, Inc.
28550 Cabot Drive, Suite 500
Novi, MI 48377

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 5.4
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☐ Yes ☒ No ☐ N/A	COC adequately filled out Analyte list not provided for metals lists and Site Specific list
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ No ☐ N/A	Do water VOC, TOX, DO or Alkalinity bottles contain

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S68472 Submitted: 11/12/2024 17:10

Client: ARCADIS_NOVI (Arcadis US, Inc.)

Project: 30214041 / Racer PNC Task 6

Attention: Lexi Nickerson

Address: Arcadis US, Inc.

28550 Cabot Drive, Suite 500
Novi, MI 48377

Initial Preservation Check: 11/13/2024 10:09 PFD

Preservation Recheck (E200.8): N/A

Phone: C: 248-994-1734 FAX:

Email: Alexis.Nickerson@arcadis.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S68472.02	125mL Plastic HNO3	<2			
S68472.03	125mL Plastic HNO3	<2			
S68472.04	125mL Plastic HNO3	<2			
S68472.05	125mL Plastic HNO3	<2			
S68472.06	125mL Plastic HNO3	<2			
S68472.07	125mL Plastic HNO3	<2			
S68472.08	125mL Plastic HNO3	<2			
S68472.09	125mL Plastic HNO3	<2			
S68472.10	125mL Plastic HNO3	<2			
S68472.11	125mL Plastic HNO3	<2			
S68472.12	125mL Plastic HNO3	<2			
S68472.13	125mL Plastic HNO3	<2			
S68472.17	125mL Plastic HNO3	<2			
S68472.20	125mL Plastic HNO3	<2			
S68472.21	125mL Plastic HNO3	<2			



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www.meritlabs.com

C.O.C. PAGE # 1 OF 4

176246

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Alexis Nickerson			
COMPANY Arccadis			
ADDRESS 28550 Cabot Dr #500			
CITY NOVI		STATE MI	ZIP CODE 48377
PHONE NO.	CELL NO.	P.O. NO.	
E-MAIL ADDRESS alexis.nickerson@arccadis.com lillian.linder@arccadis.com		QUOTE NO.	

CONTACT NAME Accounts Payable		☐ SAME	
COMPANY Arccadis			
ADDRESS 630 Plaza Dr #600			
CITY Highlands Ranch		STATE CO	ZIP CODE 80129
PHONE NO.	E-MAIL ADDRESS accounts payable.administration@arccadis.com		

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME 30214041 / Bacter RNC - task 6	SAMPLER(S) - PLEASE PRINT/SIGN NAME Alicia Balke / Alicia Balke
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

MATRIX	W=WATER	GW=GROUNDWATER	WW=WASTEWATER	S=SOIL	L=LIQUID	SD=SOLID
CODE:	SL=SLUDGE	DW=DRINKING WATER	O=OIL	WP=WIPE	A=AIR	WS=WASTE

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	☐ Other _____ Special Instructions									
	DATE	TIME																				
684722.01	11/8/24	1320	MW05-10-GW-110824	GW	3	3							VOCs									
										</												

RELINQUISHED BY: SIGNATURE/ORGANIZATION Alicia Balke / Arccadis	☒ Sampler	DATE 11/17/24	TIME 1500
RECEIVED BY: SIGNATURE/ORGANIZATION JP on 11/18/24		DATE 11/18/24	TIME 1510
RELINQUISHED BY: SIGNATURE/ORGANIZATION JP on 11/18/24		DATE 11/18/24	TIME 1710
RECEIVED BY: SIGNATURE/ORGANIZATION JP on 11/18/24		DATE 11/18/24	TIME 1710

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
NOTES:		TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE



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C.O.C. PAGE # 2 OF 4

159489

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Lexi Nickerson	
COMPANY Arcadis	
ADDRESS 28550 Cabot Dr Ste 500	
CITY Novi	STATE MI
ZIP CODE 48377	
PHONE NO. 614.985.9163	CELL NO.
E-MAIL ADDRESS alexis.nickerson@arcadis.com	P.O. NO. 30214041-00005
	QUOTE NO.

CONTACT NAME		☐ SAME
COMPANY		
ADDRESS		
CITY	STATE	ZIP CODE
PHONE NO.	E-MAIL ADDRESS	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME 30214041-00005 / RACER-PNC	SAMPLER(S) - PLEASE PRINT/SIGN NAME Garrett Link / [Signature]
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER	
DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER	

MATRIX W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID
CODE: SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=WASTE

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	COLLECTION		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	Site S (200.1)	VOCs	1,4-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

RELINQUISHED BY: SIGNATURE/ORGANIZATION [Signature] / Arcadis	☒ Sampler	DATE 11/8/24	TIME 1700
RECEIVED BY: SIGNATURE/ORGANIZATION Alanna Baker / Arcadis		DATE 11/8/24	TIME 1700
RELINQUISHED BY: SIGNATURE/ORGANIZATION [Signature]		DATE 11/12/24	TIME 1800
RECEIVED BY: SIGNATURE/ORGANIZATION [Signature]		DATE 11/12/24	TIME 1710

RELINQUISHED BY: SIGNATURE/ORGANIZATION Alanna Baker / Arcadis	DATE 11/12/24	TIME 1500
RECEIVED BY: SIGNATURE/ORGANIZATION [Signature]	DATE 11/12/24	TIME 1510
SEAL NO.	SEAL INTACT ☐ YES ☐ NO	INITIALS
SEAL NO.	SEAL INTACT ☐ YES ☐ NO	INITIALS
NOTES:		TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME		Alexis Nicholson	
COMPANY		Arcadus	
ADDRESS			
28550 Cabot Dr #500			
CITY		STATE	ZIP CODE
Now		MI	48377
PHONE NO.		CELL NO.	
		P.O. NO.	
E-MAIL ADDRESS		QUOTE NO.	
alexis.nicholson@arcadus.com tiffany_under@arcadus.com			

CONTACT NAME		Arcadis Accounts Payable		☐ SAME	
COMPANY		Arcadis			
ADDRESS		630 Plaza Dr #600			
CITY		Highlands Ranch		STATE	CO
				ZIP CODE	80129
PHONE NO.		E-MAIL ADDRESS accounts.payable.administration@arcadis.com			

PROJECT NO./NAME <u>3024041 / Baker PNC</u>	SAMPLER(S) - PLEASE PRINT/SIGN NAME <u>Alicia Parks / Alicia Parks</u>
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☒ EDD ☐ OTHER _____	

MATRIX	W=WATER	GW=GROUNDWATER	WW=WASTEWATER	S=SOIL	L=LIQUID	SD=SOLID
CODE:	SL=SLUDGE	DW=DRINKING WATER	O=OIL	WP=WIPE	A=AIR	WS=WASTE

Containers & Preservatives

[illegible]

RELINQUISHED BY:	<i>Adriana Ralva/ACCADS</i>	☒ Sampler	DATE	TIME
SIGNATURE/ORGANIZATION			11/12/24	1500
RECEIVED BY:	<i>John</i>		DATE	TIME
SIGNATURE/ORGANIZATION			11/18/24	1500
RELINQUISHED BY:	<i>John</i>		DATE	TIME
SIGNATURE/ORGANIZATION			11/12/24	1740
RECEIVED BY:	<i>John</i>		DATE	TIME
SIGNATURE/ORGANIZATION			11/12/24	1710

RELINQUISHED BY:				DATE	TIME
SIGNATURE/ORGANIZATION					
RECEIVED BY:				DATE	TIME
SIGNATURE/ORGANIZATION					
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL	5.4
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS			

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

SUBJECT

**RACER PNC 2024 Annual Groundwater Monitoring Report
Analytical Validation Summary Report**

DEPARTMENT
Environment

PROJECT NUMBER
30267726.00006

COPIES TO
Project File

NAME
Rachelle LaGarde

A review was performed on fifteen (5) Level II QC reports for groundwater data collected during the 2024 annual groundwater monitoring event conducted in September, and all laboratory qualifiers were evaluated.

Based on the review, eight VOC result was estimated (J/UJ) due to the LCS/LCSD recovery. The VOC results that were estimated included the following:

- Methyl Iodide – MWOS-01-GW-110524, MWM2-28-GW-110524, MWM2-22-GW-110524, MWF12-02R-GW-110724, Trip Blank, MWM30-01-GW-110824, TRIP BLANK and DUP-02-GW-110824.

VOC results that were qualified estimated due to MS/MSD recoveries:

- Methyl Iodide – MWM2-22-GW-110524

Metals results that were qualified as estimated (J/UJ) due to MS/MSD recoveries include the following:

- Iron – MWW01-SEN03-GW-110724, MW-01-17_GW-110724, TW-MD-05_GW-110724, MWW1-02_GW-110724 and SEEP-VAULT_GW-110724

PFAS results that were qualified as estimated (J/UJ) due to Field Duplicate RPDs include the following:

- PFBS - DUP-02_110824 and MWM30-01_GW-110824

PFAS results that were qualified as estimated due to EIS percent recoveries include the following:

- PFBA - MW-01-17_GW-110724, MWM30-01, DUP-02_110824, MWW1-04_GW-110824, MW-0S-09R_GW-110624, MWF12-02R_GW-110724, MW0S-04_GW-110724, MW-OS-10_GW-110824 and MWW10-03_GW-110824
- 6:2 FTS - MWM30-01 and DUP-02_110824.
- NMeFOSAA - MW-0S-10_GW-110724

RACER PNC

2023 Annual Groundwater Monitoring Report

In summary, while the results for several PFAS, VOCs and Metals from the 2024 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 or indicate cleanup criteria exceedances or changes to 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.

Appendix F

Summary of Groundwater Analytical Results – Non-Fiero



Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	Residential VIAP	Nonresidential VIAP	Units	MW-01-17* 11/7/2024 MW-01-17_GW-110724	MW-03-17 11/6/2024 MW-03-17_GW-110624	MWM16-02* 11/12/2024 MWM16-02_GW-111224	MWM16-02* 11/12/2024 DUP-05_111224	MWM16-37* 11/12/2024 MWM16-37_GW-111224	MWM2-22 11/5/2024 MWM2-22-GW-110524	MWM2-28 11/5/2024 MWM2-28-GW110524	MWM30-01* 11/8/2024 MWM30-01_GW-110824
3) Samples denoted with an asterisk (*) are located within 100 feet, or are off-site, and are compared to residential exposure criteria														
pH	6.5-9.0	6.5-8.5	--	--	--	SU	7.94	7.28	7.13	NA	7.32	6.95	7.25	6.95
Turbidity	--	--	--	--	--	NTU	1.26	1.10	2.12	NA	3.97	0.02	0.99	3.74
PFAS														
11CI-PF3OUdS (F-53B Minor)	--	--	--	--	--	ng/L	< 3.9 U	< 9.8 U	NA	NA	NA	NA	NA	< 3.8 U
4:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 3.9 U	< 9.8 U	NA	NA	NA	NA	NA	< 3.7 U
6:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 3.9 U	< 10 U	NA	NA	NA	NA	NA	27.8 J
8:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 4.0 U	< 10.1 U	NA	NA	NA	NA	NA	< 3.9 U
9CI-PF3ONS (F-53B Major)	--	--	--	--	--	ng/L	< 3.8 U	< 9.7 U	NA	NA	NA	NA	NA	< 3.7 U
ADONA	--	--	--	--	--	ng/L	< 3.9 U	< 9.9 U	NA	NA	NA	NA	NA	< 3.8 U
HFPO-DA (GenX)	--	370	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
N-ethyl perfluorooctane sulfonamidoacetic acid (NEIFOSAA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluorobutanesulfonic acid (PFBS)	670,000	420	--	--	--	ng/L	< 3.7 U	15.4	NA	NA	NA	NA	NA	< 3.5 UJ
Perfluorobutanoic acid (PFBA)	--	--	--	--	--	ng/L	< 4.1 UJ	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 UJ
Perfluorodecanesulfonic acid (PFDS)	--	--	--	--	--	ng/L	< 4.0 U	< 10.1 U	NA	NA	NA	NA	NA	< 3.9 U
Perfluorodecanoic acid (PFDA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluorododecanoic acid (PFDoA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluoroheptanesulfonic Acid (PFHpS)	--	--	--	--	--	ng/L	< 3.9 U	< 10 U	NA	NA	NA	NA	NA	< 3.8 U
Perfluoroheptanoic acid (PFHpA)	--	--	--	--	--	ng/L	5.1	< 10.5 U	NA	NA	NA	NA	NA	16.2
Perfluorohexanesulfonic acid (PFHxS)	210	51	--	--	--	ng/L	13.1	36.4	NA	NA	NA	NA	NA	13.7
Perfluorohexanoic acid (PFHxA)	--	400,000	--	--	--	ng/L	6.2	< 10.5 U	NA	NA	NA	NA	NA	14.1
Perfluorononanesulfonic acid (PFNS)	--	--	--	--	--	ng/L	< 4.0 U	< 10.1 U	NA	NA	NA	NA	NA	< 3.8 U
Perfluorononanoic acid (PFNA)	30	6	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluorooctane Sulfonamide (FOSA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluorooctane sulfonic acid (PFOS)	12	16	--	--	--	ng/L	13.1	200	NA	NA	NA	NA	NA	4.7
Perfluorooctanoic acid (PFOA)	170	8	--	--	--	ng/L	14.0	18.5	NA	NA	NA	NA	NA	39.7
Perfluoropentanesulfonic acid (PFPeS)	--	--	--	--	--	ng/L	< 3.9 U	< 9.8 U	NA	NA	NA	NA	NA	< 3.8 U
Perfluoropentanoic acid (PFPeA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	12.8
Perfluorotetradecanoic acid (PFTeA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluorotridecanoic Acid (PFTriA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
Perfluoroundecanoic acid (PFUnA)	--	--	--	--	--	ng/L	< 4.1 U	< 10.5 U	NA	NA	NA	NA	NA	< 4.0 U
General Chemistry														
Total dissolved solids (TDS)	500	--	--	--	--	mg/L	1460	NA	NA	NA	NA	NA	NA	NA
Metals														
Iron	--	0.3	2.0	--	--	mg/L	3.57 J	NA	NA	NA	NA	NA	NA	NA
Manganese	1.3	0.05	0.86	--	--	mg/L	0.314	NA	NA	NA	NA	NA	NA	NA
PCBs														
Aroclor-1016 (PCB-1016)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221 (PCB-1221)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232 (PCB-1232)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242 (PCB-1242)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248 (PCB-1248)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254 (PCB-1254)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260 (PCB-1260)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1,2-Tetrachloroethane	--	320	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	89	200	--	14,000	19,000	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	78	35	--	71	170	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	330	5	--	14	20	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	740	2,500	--	130	300	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	18	< 1 U	< 1 U
1,1-Dichloroethene	130	7	--	330	480	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-Trichlorobenzene	--	--	--	--	--	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2,3-Trichloropropane	--	120	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-Trimethylbenzene	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	99	70	--	110	160	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2,4-Trimethylbenzene	17	63	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	--	0.2	--	0.00045	0.021	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dibromoethane (Ethylene dibromide)	5.7	0.05	--	3.8	8.9	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	13	600	--	11,000	16,000	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	360	5	--	41	97	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	230	5	--	74	110	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3,5-Trimethylbenzene	45	72	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	28	19	--	75	110	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	17	75	--	170	400	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U



Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	Residential VIAP	Nonresidential VIAP	Units	MW-01-17* 11/7/2024 MW-01-17_GW-110724	MW-03-17 11/6/2024 MW-03-17_GW-110624	MWM16-02* 11/12/2024 MWM16-02_GW-111224	MWM16-02* 11/12/2024 DUP-05_111224	MWM16-37* 11/12/2024 MWM16-37_GW-111224	MWM2-22 11/5/2024 MWM2-22-GW-110524	MWM2-28 11/5/2024 MWM2-28-GW110524	MWM30-01* 11/8/2024 MWM30-01_GW-110824
1,4-Dioxane	280	350	--	56,000	130,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	2,200	38,000	--	4,300,000	4,300,000	ug/L	NA	NA	< 25 U	< 25 U	< 25 U	< 25 U	< 25 U	< 25 U
2-Hexanone	--	2,900	--	20,000	29,000	ug/L	NA	NA	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2-Methylnaphthalene	19	750	--	--	--	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
2-Phenylbutane (sec-Butylbenzene)	--	230	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	--	5,200	--	330,000	330,000	ug/L	NA	NA	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Acetone	1,700	2,100	--	40,000,000	40,000,000	ug/L	NA	NA	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Acrylonitrile	2	11	--	--	--	ug/L	NA	NA	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Benzene	200	5	--	28	66	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromobenzene	--	50	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	--	80	--	34	73	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	--	80	--	2,700	6,200	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane (Methyl bromide)	5	29	--	55	80	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon disulfide	--	2,300	--	2,100	3,100	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon tetrachloride	38	5	--	7.7	18	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorobenzene	25	100	--	940	1,400	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chlorobromomethane	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	1,100	1,700	--	15,000	22,000	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroform (Trichloromethane)	350	80	--	14	32	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane (Methyl chloride)	--	1,100	--	380	560	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
cis-1,2-Dichloroethene	620	70	--	95	140	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	11	< 1 U	< 1 U
cis-1,3-Dichloropropene	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cymene (p-Isopropyltoluene)	--	--	--	--	--	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Dibromochloromethane	--	80	--	23	130	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Dibromomethane	--	230	--	--	--	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Dichlorodifluoromethane (CFC-12)	--	4,800	--	49	410	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Ethyl ether	--	10	--	--	--	ug/L	NA	NA	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Ethylbenzene	18	74	--	74	170	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Hexachloroethane	6.7	21	--	--	--	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Iodomethane	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 UJ	< 1 UJ
Isopropyl benzene	28	2,300	--	15	36	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
m&p-Xylene	--	--	--	--	--	ug/L	NA	NA	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methyl tert butyl ether (MTBE)	7,100	40	--	7,400	17,000	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Methylene chloride	1,500	5	--	8,400	12,000	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Naphthalene	11	1,500	--	--	--	ug/L	NA	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
N-Butylbenzene	--	230	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
N-Propylbenzene	--	230	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
o-Xylene	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Styrene	80	100	--	960	2,300	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
tert-Butylbenzene	--	230	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	60	5	--	130	130	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	2	< 1 U	< 1 U
Tetrahydrofuran	11,000	270	--	1,400,000	2,000,000	ug/L	NA	NA	< 90 U	< 90 U	< 90 U	< 90 U	< 90 U	< 90 U
Toluene	270	790	--	41,000	59,000	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	1,500	100	--	390	580	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,4-Dichloro-2-butene	--	--	--	--	--	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	200	5	--	10	10	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	5	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	--	7,300	--	190	560	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	13	2	--	2.1	18	ug/L	NA	NA	< 1 U	< 1 U	< 1 U	12	< 1 U	< 1 U



Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	Residential VIAP	Nonresidential VIAP	Units	MWM30-01* 11/8/2024 DUP-02_GW-110824	MWM32-09* 11/12/2024 MWM-32-09_GW-111224	MWOS-01* 11/5/2024 MWOS-01-GW-110524	MWOS-02* 11/8/2024 MWOS-02_GW-110824	MWOS-04* 11/7/2024 MWOS-04-GW-110724	MWOS-05* 11/8/2024 MWOS-05_GW-110824	MWOS-05* 11/8/2024 DUP-03-110824	MWW01-SEN03 11/7/2024 MWW01-SEN03_GW-110724
3) Samples denoted with an asterisk (*) are located within 100 feet, or are off-site, and are compared to residential exposure criteria														
pH	6.5-9.0	6.5-8.5	--	--	--	SU	NA	7.09	7.21	7.06	6.86	7.72	NA	7.34
Turbidity	--	--	--	--	--	NTU	NA	0.02	0.51	6.15	4.37	9.12	NA	4.13
PFAS														
11CI-PF3OUdS (F-53B Minor)	--	--	--	--	--	ng/L	< 3.7 U	NA	NA	< 1.9 U	< 9.8 U	< 19.5 U	< 19.7 U	NA
4:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 3.6 U	NA	NA	< 1.9 U	< 9.7 U	< 19.4 U	< 19.6 U	NA
6:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	30.3 J	NA	NA	< 1.9 U	< 9.9 U	< 19.8 U	< 19.9 U	NA
8:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 3.8 U	NA	NA	< 2.0 U	< 10.0 U	< 20.1 U	< 20.2 U	NA
9CI-PF3ONS (F-53B Major)	--	--	--	--	--	ng/L	< 3.6 U	NA	NA	< 1.9 U	< 9.7 U	< 19.3 U	< 19.5 U	NA
ADONA	--	--	--	--	--	ng/L	< 3.7 U	NA	NA	< 1.9 U	< 9.8 U	< 19.6 U	< 19.8 U	NA
HFPO-DA (GenX)	--	370	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorobutanesulfonic acid (PFBS)	670,000	420	--	--	--	ng/L	19.0 J	NA	NA	4.7	< 9.2 U	< 18.4 U	< 18.6 U	NA
Perfluorobutanoic acid (PFBA)	--	--	--	--	--	ng/L	< 3.9 UJ	NA	NA	6.1	< 10.4 UJ	< 20.8 U	31.4	NA
Perfluorodecanesulfonic acid (PFDS)	--	--	--	--	--	ng/L	< 3.8 U	NA	NA	< 2.0 U	< 10.0 U	< 20.1 U	< 20.2 U	NA
Perfluorodecanoic acid (PFDA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorododecanoic acid (PFDoA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluoroheptanesulfonic acid (PFHpS)	--	--	--	--	--	ng/L	< 3.7 U	NA	NA	< 1.9 U	< 9.9 U	< 19.8 U	< 19.9 U	NA
Perfluoroheptanoic acid (PFHpA)	--	--	--	--	--	ng/L	15.6	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorohexanesulfonic acid (PFHxS)	210	51	--	--	--	ng/L	14.3	NA	NA	6.3	< 9.5 U	< 18.9 U	< 19.1 U	NA
Perfluorohexanoic acid (PFHxA)	--	400,000	--	--	--	ng/L	17.6	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorononanesulfonic acid (PFNS)	--	--	--	--	--	ng/L	< 3.7 U	NA	NA	< 2.0 U	< 10 U	< 20.0 U	< 20.1 U	NA
Perfluorononanoic acid (PFNA)	30	6	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorooctane Sulfonamide (FOSA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorooctane sulfonic acid (PFOS)	12	16	--	--	--	ng/L	5.2	NA	NA	7.8	< 9.6 U	< 19.2 U	< 19.4 U	NA
Perfluorooctanoic acid (PFOA)	170	8	--	--	--	ng/L	39.6	NA	NA	5.1	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluoropentanesulfonic acid (PFPeS)	--	--	--	--	--	ng/L	< 3.7 U	NA	NA	< 1.9 U	< 9.8 U	< 19.5 U	< 19.7 U	NA
Perfluoropentanoic acid (PFPeA)	--	--	--	--	--	ng/L	14.8	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorotetradecanoic acid (PFTeA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluorotridecanoic Acid (PFTriA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
Perfluoroundecanoic acid (PFUnA)	--	--	--	--	--	ng/L	< 3.9 U	NA	NA	< 2.0 U	< 10.4 U	< 20.8 U	< 21.0 U	NA
General Chemistry														
Total dissolved solids (TDS)	500	--	--	--	--	mg/L	NA	NA	1,210	1,340	1,510	790	852	1,420
Metals														
Iron	--	0.3	2.0	--	--	mg/L	NA	NA	1.63	0.66	6.95	19.8	20.2	20.6 J
Manganese	1.3	0.05	0.86	--	--	mg/L	NA	NA	0.293	0.401	0.192	1.58	1.53	0.554
PCBs														
Aroclor-1016 (PCB-1016)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Aroclor-1221 (PCB-1221)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Aroclor-1232 (PCB-1232)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Aroclor-1242 (PCB-1242)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Aroclor-1248 (PCB-1248)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Aroclor-1254 (PCB-1254)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Aroclor-1260 (PCB-1260)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
Total PCBs	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	< 0.1 U	< 0.1 U	NA
VOCs														
1,1,1,2-Tetrachloroethane	--	320	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,1,1-Trichloroethane	89	200	--	14,000	19,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	78	35	--	71	170	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,1,2-Trichloroethane	330	5	--	14	20	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,1-Dichloroethane	740	2,500	--	130	300	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,1-Dichloroethene	130	7	--	330	480	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2,3-Trichlorobenzene	--	--	--	--	--	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
1,2,3-Trichloropropane	--	120	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2,3-Trimethylbenzene	--	--	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2,4-Trichlorobenzene	99	70	--	110	160	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
1,2,4-Trimethylbenzene	17	63	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	--	0.2	--	0.00045	0.021	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	5.7	0.05	--	3.8	8.9	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2-Dichlorobenzene	13	600	--	11,000	16,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2-Dichloroethane	360	5	--	41	97	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,2-Dichloropropane	230	5	--	74	110	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,3,5-Trimethylbenzene	45	72	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,3-Dichlorobenzene	28	19	--	75	110	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
1,4-Dichlorobenzene	17	75	--	170	400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA



Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	Residential VIAP	Nonresidential VIAP	Units	MWM30-01* 11/8/2024 DUP-02_GW-110824	MWM32-09* 11/12/2024 MWM-32-09_GW-111224	MWOS-01* 11/5/2024 MWOS-01-GW-110524	MWOS-02* 11/8/2024 MW0S-02_GW-110824	MWOS-04* 11/7/2024 MWOS-04-GW-110724	MWOS-05* 11/8/2024 MWOS-05_GW-110824	MWOS-05* 11/8/2024 DUP-03-110824	MWW01-SEN03 11/7/2024 MWW01-SEN03_GW-110724
1,4-Dioxane	280	350	--	56,000	130,000	ug/L	NA	NA	26	7	34	NA	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	2,200	38,000	--	4,300,000	4,300,000	ug/L	< 25 U	< 25 U	< 25 U	< 25 U	NA	NA	NA	NA
2-Hexanone	--	2,900	--	20,000	29,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	NA	NA	NA	NA
2-Methylnaphthalene	19	750	--	--	--	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	--	230	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	--	5,200	--	330,000	330,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	NA	NA	NA	NA
Acetone	1,700	2,100	--	40,000,000	40,000,000	ug/L	< 50 U	< 50 U	< 50 U	< 50 U	NA	NA	NA	NA
Acrylonitrile	2	11	--	--	--	ug/L	< 2 U	< 2 U	< 2 U	< 2 U	NA	NA	NA	NA
Benzene	200	5	--	28	66	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Bromobenzene	--	50	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Bromodichloromethane	--	80	--	34	73	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Bromoform	--	80	--	2,700	6,200	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Bromomethane (Methyl bromide)	5	29	--	55	80	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Carbon disulfide	--	2,300	--	2,100	3,100	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Carbon tetrachloride	38	5	--	7.7	18	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Chlorobenzene	25	100	--	940	1,400	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Chlorobromomethane	--	--	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Chloroethane	1,100	1,700	--	15,000	22,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Chloroform (Trichloromethane)	350	80	--	14	32	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Chloromethane (Methyl chloride)	--	1,100	--	380	560	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
cis-1,2-Dichloroethene	620	70	--	95	140	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
cis-1,3-Dichloropropene	--	--	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	--	--	--	--	--	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Dibromochloromethane	--	80	--	23	130	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Dibromomethane	--	230	--	--	--	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	--	4,800	--	49	410	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Ethyl ether	--	10	--	--	--	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	NA	NA	NA	NA
Ethylbenzene	18	74	--	74	170	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Hexachloroethane	6.7	21	--	--	--	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Iodomethane	--	--	--	--	--	ug/L	< 1 UJ	< 1 U	< 1 UJ	< 1 U	NA	NA	NA	NA
Isopropyl benzene	28	2,300	--	15	36	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
m&p-Xylene	--	--	--	--	--	ug/L	< 2 U	< 2 U	< 2 U	< 2 U	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	7,100	40	--	7,400	17,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Methylene chloride	1,500	5	--	8,400	12,000	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
Naphthalene	11	1,500	--	--	--	ug/L	< 5 U	< 5 U	< 5 U	< 5 U	NA	NA	NA	NA
N-Butylbenzene	--	230	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
N-Propylbenzene	--	230	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
o-Xylene	--	--	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Styrene	80	100	--	960	2,300	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
tert-Butylbenzene	--	230	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Tetrachloroethene	60	5	--	130	130	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Tetrahydrofuran	11,000	270	--	1,400,000	2,000,000	ug/L	< 90 U	< 90 U	< 90 U	< 90 U	NA	NA	NA	NA
Toluene	270	790	--	41,000	59,000	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
trans-1,2-Dichloroethene	1,500	100	--	390	580	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
trans-1,3-Dichloropropene	--	--	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	--	--	--	--	--	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Trichloroethene	200	5	--	10	10	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	--	7,300	--	190	560	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA
Vinyl chloride	13	2	--	2.1	18	ug/L	< 1 U	< 1 U	< 1 U	< 1 U	NA	NA	NA	NA



Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	Residential VIAP	Nonresidential VIAP	Units	MWW10-03 11/8/2024 MWW10-03_GW-110824	MWW1-02* 11/7/2024 MWW1-02_GW-110724	MWW1-04* 11/8/2024 MWW1-04_GW-110824	MWW1-06* 11/7/2024 MWW1-06-GW-110724	SEEPVAULT* 11/7/2024 SEEP-VAULT_GW-110724	TW-10-01 11/5/2024 TW-10-01-GW-110524	TW-MD-02* 11/12/2024 TW-MD-02_GW-111224	TW-MD-05* 11/7/2024 TW-MD-05_GW-110724
3) Samples denoted with an asterisk (*) are located within 100 feet, or are off-site, and are compared to residential exposure criteria														
pH	6.5-9.0	6.5-8.5	--	--	--	SU	7.36	6.77	10.20	7.02	7.15	6.89	7.01	7.27
Turbidity	--	--	--	--	--	NTU	0.02	9.90	0.93	6.45	7.15	0.02	0.18	3.32
PFAS														
11CI-PF3OUdS (F-53B Minor)	--	--	--	--	--	ng/L	< 1.8 U	< 19.7 U	< 3.7 U	< 9.4 U	< 19.4 U	NA	NA	NA
4:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 1.8 U	< 19.5 U	< 3.7 U	< 9.3 U	< 19.3 U	NA	NA	NA
6:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 1.8 U	< 19.9 U	< 3.8 U	< 9.5 U	< 19.6 U	NA	NA	NA
8:2 Fluorotelomer Sulfonic Acid (FTS)	--	--	--	--	--	ng/L	< 1.9 U	< 20.2 U	< 3.8 U	< 9.6 U	< 19.9 U	NA	NA	NA
9CI-PF3ONS (F-53B Major)	--	--	--	--	--	ng/L	< 1.8 U	< 19.4 U	< 3.7 U	< 9.3 U	< 19.2 U	NA	NA	NA
ADONA	--	--	--	--	--	ng/L	< 1.8 U	< 19.8 U	< 3.7 U	< 9.4 U	< 19.5 U	NA	NA	NA
HFPO-DA (GenX)	--	370	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
N-ethyl perfluorooctane sulfonamidoacetic acid (NetFOSAA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	11.4	< 10 U	< 20.6 U	NA	NA	NA
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorobutanesulfonic acid (PFBS)	670,000	420	--	--	--	ng/L	< 1.7 U	< 18.5 U	< 3.5 U	< 8.8 U	< 18.2 U	NA	NA	NA
Perfluorobutanoic acid (PFBA)	--	--	--	--	--	ng/L	7.0 J	< 20.9 U	< 4.0 UJ	< 10 U	< 20.6 U	NA	NA	NA
Perfluorodecanesulfonic acid (PFDS)	--	--	--	--	--	ng/L	< 1.9 U	< 20.2 U	< 3.8 U	< 9.6 U	< 19.9 U	NA	NA	NA
Perfluorodecanoic acid (PFDA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorododecanoic acid (PFDoA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluoroheptanesulfonic acid (PFHpS)	--	--	--	--	--	ng/L	< 1.8 U	< 19.9 U	< 3.8 U	< 9.5 U	< 19.6 U	NA	NA	NA
Perfluoroheptanoic acid (PFHpA)	--	--	--	--	--	ng/L	2.3	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorohexanesulfonic acid (PFHxS)	210	51	--	--	--	ng/L	2.1	< 19.0 U	6.7	< 9.1 U	< 18.7 U	NA	NA	NA
Perfluorohexanoic acid (PFHxA)	--	400,000	--	--	--	ng/L	2.2	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorononanesulfonic acid (PFNS)	--	--	--	--	--	ng/L	< 1.8 U	< 20.1 U	< 3.8 U	< 9.6 U	< 19.8 U	NA	NA	NA
Perfluorononanoic acid (PFNA)	30	6	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorooctane Sulfonamide (FOSA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorooctane sulfonic acid (PFOS)	12	16	--	--	--	ng/L	23.4	53.2	98.6	< 9.2 U	105	NA	NA	NA
Perfluorooctanoic acid (PFOA)	170	8	--	--	--	ng/L	10.7	< 20.9 U	6.5	< 10 U	< 20.6 U	NA	NA	NA
Perfluoropentanesulfonic acid (PFPeS)	--	--	--	--	--	ng/L	< 1.8 U	< 19.7 U	< 3.7 U	< 9.4 U	< 19.4 U	NA	NA	NA
Perfluoropentanoic acid (PFPeA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorotetradecanoic acid (PFTeA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluorotridecanoic Acid (PFTriA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
Perfluoroundecanoic acid (PFUnA)	--	--	--	--	--	ng/L	< 1.9 U	< 20.9 U	< 4.0 U	< 10 U	< 20.6 U	NA	NA	NA
General Chemistry														
Total dissolved solids (TDS)	500	--	--	--	--	mg/L	NA	1,250	500	514	1,680	NA	1,620	1,740
Metals														
Iron	--	0.3	2.0	--	--	mg/L	NA	29.0 J	< 0.02 U	5.27	13.0 J	NA	5.54	7.49 J
Manganese	1.3	0.05	0.86	--	--	mg/L	NA	0.844	< 0.005 U	0.270	0.463	NA	0.597	0.310
PCBs														
Aroclor-1016 (PCB-1016)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221 (PCB-1221)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232 (PCB-1232)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242 (PCB-1242)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248 (PCB-1248)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254 (PCB-1254)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260 (PCB-1260)	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Total PCBs	0.2	0.5	--	0.031	0.97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
VOCs														
1,1,1,2-Tetrachloroethane	--	320	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	89	200	--	14,000	19,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	78	35	--	71	170	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	330	5	--	14	20	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	740	2,500	--	130	300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	130	7	--	330	480	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	--	120	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	99	70	--	110	160	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	17	63	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)	--	0.2	--	0.00045	0.021	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)	5.7	0.05	--	3.8	8.9	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	13	600	--	11,000	16,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	360	5	--	41	97	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	230	5	--	74	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	45	72	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	28	19	--	75	110	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	17	75	--	170	400	ug/L	NA	NA	NA	NA	NA	NA	NA	NA



Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	Residential VIAP	Nonresidential VIAP	Units	MWW10-03 11/8/2024 MWW10-03_GW-110824	MWW1-02* 11/7/2024 MWW1-02_GW-110724	MWW1-04* 11/8/2024 MWW1-04_GW-110824	MWW1-06* 11/7/2024 MWW1-06-GW-110724	SEEPVAULT* 11/7/2024 SEEP-VAULT_GW-110724	TW-10-01 11/5/2024 TW-10-01-GW-110524	TW-MD-02* 11/12/2024 TW-MD-02_GW-111224	TW-MD-05* 11/7/2024 TW-MD-05_GW-110724
1,4-Dioxane	280	350	--	56,000	130,000	ug/L	NA	NA	NA	NA	NA	3	NA	NA
2-Butanone (Methyl ethyl ketone) (MEK)	2,200	38,000	--	4,300,000	4,300,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	--	2,900	--	20,000	29,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	19	750	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
2-Phenylbutane (sec-Butylbenzene)	--	230	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	--	5,200	--	330,000	330,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	1,700	2,100	--	40,000,000	40,000,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	2	11	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	200	5	--	28	66	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	--	50	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	--	80	--	34	73	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	--	80	--	2,700	6,200	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane (Methyl bromide)	5	29	--	55	80	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	2,300	--	2,100	3,100	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	38	5	--	7.7	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	25	100	--	940	1,400	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobromomethane	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	1,100	1,700	--	15,000	22,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (Trichloromethane)	350	80	--	14	32	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane (Methyl chloride)	--	1,100	--	380	560	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	620	70	--	95	140	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Cymene (p-Isopropyltoluene)	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	--	80	--	23	130	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	--	230	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	--	4,800	--	49	410	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl ether	--	10	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	18	74	--	74	170	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	6.7	21	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Iodomethane	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	28	2,300	--	15	36	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
m&p-Xylene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	7,100	40	--	7,400	17,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	1,500	5	--	8,400	12,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	11	1,500	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
N-Butylbenzene	--	230	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
N-Propylbenzene	--	230	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	80	100	--	960	2,300	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	--	230	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	60	5	--	130	130	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	11,000	270	--	1,400,000	2,000,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	270	790	--	41,000	59,000	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	1,500	100	--	390	580	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	--	--	--	--	--	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	200	5	--	10	10	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	--	7,300	--	190	560	ug/L	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	13	2	--	2.1	18	ug/L	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

- 1) Criteria listed are from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, October 12, 2023
- 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, March 2021.
- 3) Samples denoted with an asterisk (*) are located within 100 feet, or are off-site, and are compared to residential exposure criteria
- 4) Groundwater Surface Water Interface Criteria listed for manganese are calculated based on a hardness of 150 mg/L-CaCO₃ for southern Lower Peninsula protected as a drinking water source.
- 5) Grey shaded values denotes exceedance and/or equal to Michigan Groundwater Surface Water Interface Criteria.
- 6) Orange highlighted values denotes exceedance and/or equal to Michigan Non-Residential Drinking Water.
- 7) Bold values denote exceedance and/or equal to Residential Health Based Drinking Water criteria.
- 8) Values in italics denotes exceedance and/or equal to Residential Volatilization to Indoor Air Pathway criteria.
- 9) Values in red denotes exceedance and/or equal to Nonresidential Volatilization to Indoor Air Pathway criteria.
- 10) Duplicate analyses are listed to the right of the parent sample and have sample names beginning with "DUP"
- 11) Samples were analyzed for PFAS by USEPA Modified 537 with Isotopic Dilution; Metals by SW3015A; VOCs by SW5030C/8260C; PCBs by E608.3; and TDS by SM2540C

Abbreviations:

ng/L - Nanograms per liter
mg/L - Milligrams per liter
ug/L - Micrograms per liter
< - Not detected above the laboratory reporting limit
J - Estimated value less than reporting limit, but greater than MDL
NA - Not analyzed
NTU - Nephelometric turbidity unit
PFAS - Per- and Polyfluoroalkyl Substances
PCBs - Polychlorinated Biphenyls
SU - Standard Unit
TDS - Total Dissolved Solids
U - Compound was analyzed for but not detected. The associated value is the compound quantitation limit
VIAP - Volatilization to Indoor Air Pathway
VOCs - Volatile Organic Compounds

Appendix G

Summary of Groundwater Analytical Results – Fiero



	Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	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	MWF12-01R* 11/7/2024 MWF12-01R-GW-110724	MWF12-01R* 11/7/2024 DUP-01-110724	MWF12-02R* 11/7/2024 MWF12-02R-GW-110724	MWF16-25* 11/6/2024 MWF16-25 GW-110624	MWF16-26* 11/6/2024 MWF16-26 GW-110624	MWF7-02 11/5/2024 MWF7-02-GW-110524	MWOS-09R* 11/6/2024 MWOS-09R GW-110624	MWOS-10* 11/8/2024 MWOS-10 GW-110824
3) Samples denoted with an asterisk (*) are located within 100 feet, or are off-site, and are compared to residential exposure criteria																			
pH		6.5-9.0	6.5-8.5	--	--	--	--	--	--	--	SU	6.92	NA	7.12	7.24	7.16	7.24	7.24	7.47
Turbidity		--	--	--	--	--	--	--	--	--	NTU	1.35	NA	8.36	3.23	1.09	6.32	3.46	3.22
PFAS																			
11CI-PF3OUdS (F-53B Minor)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.0 U	< 1.9 U	< 1.9 U	NA	< 2.0 U	< 2.2 U
4:2 Fluorotelomer Sulfonic Acid (FTS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.0 U	< 1.9 U	< 1.9 U	NA	< 1.9 U	< 2.2 U
6:2 Fluorotelomer Sulfonic Acid (FTS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.1 U	< 1.9 U	< 1.9 U	NA	< 2.0 U	< 2.3 U
8:2 Fluorotelomer Sulfonic Acid (FTS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.1 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.3 U
9CI-PF3ONS (F-53B Major)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.0 U	< 1.9 U	< 1.9 U	NA	< 1.9 U	< 2.2 U
ADONA		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.0 U	< 1.9 U	< 1.9 U	NA	< 2.0 U	< 2.2 U
HFPO-DA (GenX)		--	370	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 UJ
Perfluorobutanesulfonic acid (PFBS)		670,000	420	--	--	--	--	--	--	--	ng/L	NA	NA	9.1	9.6	19.2	NA	7.4	5.4
Perfluorobutanoic acid (PFBA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	27.7 J	12.0	18.8	NA	9.5 J	18.5 J
Perfluorodecanesulfonic acid (PFDS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.1 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.3 U
Perfluorodecanoic acid (PFDA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
Perfluorododecanoic acid (PFDoA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
Perfluoroheptanesulfonic Acid (PFHpS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.1 U	< 1.9 U	< 1.9 U	NA	< 2.0 U	< 2.3 U
Perfluoroheptanoic acid (PFHpA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	5.2	5.9	10.1	NA	9.0	10.4
Perfluorohexanesulfonic acid (PFHxS)		210	51	--	--	--	--	--	--	--	ng/L	NA	NA	3.6	18.2	25.4	NA	17.1	14.4
Perfluorohexanoic acid (PFHxA)		--	400,000	--	--	--	--	--	--	--	ng/L	NA	NA	11.8	12.3	30.4	NA	10.5	27.7
Perfluorononanesulfonic acid (PFNS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.1 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.3 U
Perfluorononanoic acid (PFNA)		30	6	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
Perfluorooctane Sulfonamide (FOSA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
Perfluorooctane sulfonic acid (PFOS)		12	16	--	--	--	--	--	--	--	ng/L	NA	NA	4.5	< 1.9 U	< 1.9 U	NA	< 1.9 U	< 2.2 U
Perfluorooctanoic acid (PFOA)		170	8	--	--	--	--	--	--	--	ng/L	NA	NA	7.4	11.3	25.1	NA	50.0	7.2
Perfluoropentanesulfonic acid (PFPeS)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.0 U	7.9	22.9	NA	4.2	3.9
Perfluoropentanoic acid (PFPeA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	12.8	10.7	20.1	NA	11.2	21.7
Perfluorotetradecanoic acid (PFTeA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
Perfluorotridecanoic Acid (PFTriA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
Perfluoroundecanoic acid (PFUnA)		--	--	--	--	--	--	--	--	--	ng/L	NA	NA	< 2.2 U	< 2.0 U	< 2.0 U	NA	< 2.1 U	< 2.4 U
GENCHEM																			
Total dissolved solids (TDS)		500	--	--	--	--	--	--	--	--	mg/L	NA	NA	732	NA	NA	NA	NA	NA
Metals																			
Iron		--	0.3	2.0	--	--	--	--	--	--	mg/L	NA	NA	0.29	NA	NA	NA	NA	NA
Manganese		1.3	0.05	0.86	--	--	--	--	--	--	mg/L	NA	NA	0.733	NA	NA	NA	NA	NA
VOCs																			
1,1,1,2-Tetrachloroethane		--	320	--	180	93	5,700	2,400	8,500	3,700	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,1,1-Trichloroethane		89	200	--	22,000	11,000	210,000	92,000	310,000	140,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane		78	35	--	130	66	4,100	1,800	6,200	2,600	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,1,2-Trichloroethane		330	5	--	21	11	410	180	620	280	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,1-Dichloroethane		740	2,500	--	160	88	5,300	2,400	8,000	3,600	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,1-Dichloroethylene		130	7	--	410	220	8,300	3,800	13,000	5,700	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene		--	--	--	4,100	2,100	18,000	18,000	18,000	18,000	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
1,2,3-Trichloropropane		--	120	--	91	47	1,800	790	2,700	1,200	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2,3-Trimethylbenzene		--	--	--	2,000	1,100	41,000	18,000	61,000	27,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene		99	70	--	270	130	5,100	2,200	7,700	3,300	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		17	63	--	1,100	590	22,000	9,900	34,000	15,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane (DBCP)		--	0.2	--	0.00045	0.00045	0.042	0.029	0.061	0.042	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
1,2-Dibromoethane (Ethylene dibromide)		5.7	0.05	--	8	4	250	110	370	160	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		13	600	--	19,000	9,900	160,000	160,000	160,000	160,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2-Dichloroethane		360	5	--	50	27	1,600	750	2,500	1,100	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,2-Dichloropropane		230	5	--	100	56	2,100	950	3,200	1,400	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		45	72	--	800	420	16,000	7,000	24,000	10,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,3-Dichlorobenzene		28	19	--	130	70	2,700	1,200	4,000	1,700	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
1,																			



	Location ID: Date Collected: Sample Name:	Groundwater Surface Water Interface	Nonresidential Drinking Water	Residential Health Based Drinking Water	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	MWF12-01R* 11/7/2024 MWF12-01R-GW-110724	MWF12-01R* 11/7/2024 DUP-01-110724	MWF12-02R* 11/7/2024 MWF12-02R-GW-110724	MWF16-25* 11/6/2024 MWF16-25_GW-110624	MWF16-26* 11/6/2024 MWF16-26_GW_110624	MWF7-02 11/5/2024 MWF7-02-GW-110524	MWOS-09R* 11/6/2024 MWOS-09R_GW-110624	MWOS-10* 11/8/2024 MWOS-10_GW-110824
Cymene (p-Isopropyltoluene)	--	--	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Dibromochloromethane	--	80	--	--	58	29	4,400	1,800	6,600	2,800	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Dibromomethane	--	230	--	--	450	230	9,000	3,900	13,000	5,900	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Dichlorodifluoromethane (CFC-12)	--	4,800	--	--	71	38	1,400	640	2,100	960	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Ethyl ether	--	10	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 10 U	NA	NA	NA	NA	NA
Ethylbenzene	18	74	--	--	110	60	3,600	1,600	5,400	2,400	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Hexachloroethane	6.7	21	--	--	130	64	3,900	1,600	5,900	2,500	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Iodomethane	--	--	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 1 UJ	NA	NA	NA	NA	NA
Isopropyl benzene	28	2,300	--	--	26	13	810	360	1,200	540	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
m&p-Xylene	--	--	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 2 U	NA	NA	NA	NA	NA
Methyl tert butyl ether (MTBE)	7,100	40	--	--	10,000	5,300	320,000	150,000	490,000	220,000	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Methylene chloride	1,500	5	--	--	9,100	5,000	190,000	88,000	280,000	130,000	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
Naphthalene	11	1,500	--	--	190	100	6,200	2,700	9,300	4,100	ug/L	NA	NA	< 5 U	NA	NA	NA	NA	NA
N-Butylbenzene	--	230	--	--	2,000	1,100	12,000	12,000	12,000	12,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
N-Propylbenzene	--	230	--	--	10,000	5,400	52,000	31,000	52,000	46,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
o-Xylene	--	--	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Styrene	80	100	--	--	1,400	740	45,000	20,000	67,000	30,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
tert-Butylbenzene	--	230	--	--	3.4	1.8	67	29	100	44	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Tetrachloroethylene	60	5	--	--	250	130	3,400	1,500	5,000	2,200	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Tetrahydrofuran	11,000	270	--	--	1,300,000	690,000	27,000,000	12,000,000	41,000,000	19,000,000	ug/L	NA	NA	< 90 U	NA	NA	NA	NA	NA
Toluene	270	790	--	--	56,000	30,000	530,000	250,000	530,000	380,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
trans-1,2-Dichloroethylene	1,500	100	--	--	480	260	9,800	4,500	15,000	6,700	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	--	--	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
trans-1,4-Dichloro-2-butene	--	--	--	--	--	--	--	--	--	--	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Trichloroethylene	200	5	--	--	15	8.1	210	93	310	140	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Trichlorofluoromethane (CFC-11)	--	7,300	--	--	300	160	6,000	2,700	9,000	4,000	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA
Vinyl chloride	13	2	--	--	2.2	1.2	260	120	390	180	ug/L	NA	NA	< 1 U	NA	NA	NA	NA	NA



Notes:

- 1) Criteria listed are from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, October 12, 2023
- 2) Residential and Nonresidential Volatilization to Indoor Air Pathway Screening Levels (Groundwater Not in Contact) site specific criteria provided by Michigan Department of Environment, Great Lakes, and Energy
- 3) Samples denoted with an asterisk (*) are located within 100 feet, or are off-site, and are compared to residential exposure criteria
- 4) Groundwater Surface Water Interface Criteria listed for manganese are calculated based on a hardness of 150 mg/L-CaCO3 for southern Lower Peninsula
- 5) Grey shaded values denotes exceedance and/or equal to Michigan Groundwater Surface Water Interface Criteria.
- 6) Orange highlighted values denotes exceedance and/or equal to Michigan Non-Residential Drinking Water.
- 7) Bold values denote exceedance and/or equal to Residential Health Based Drinking Water criteria.
- 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 listed to the right of the parent sample and have sample names beginning with "DUP"

PCBs
by E608.3; and TDS by SM2540C

Abbreviations:

- ng/L - Nanograms per liter
- mg/L - Milligrams per liter
- ug/L - Micrograms per liter
- < - Not detected above the laboratory reporting limit
- J - Estimated value less than reporting limit, but greater than MDL
- TDS - Total Dissolved Solids
- PFAS - Per- and Polyfluoroalkyl Substances
- PCBs - Polychlorinated Biphenyls
- VOCs - Volatile Organic Compounds
- U - Compound was analyzed for but not detected. The associated value is the compound quantitation limit
- NA - Not analyzed
- Res - Residential
- NR - Non-Residential
- SSVIAP - Site-specific Volatilization to Indoor Air Pathway
- SOG - Slab-On-Grade Scenario
- BASE - Basement Scenario
- <50k - Less than 50,000 square feet
- >50k - Greater than 50,000 square feet

Appendix H

Summary of Historical Groundwater Sampling Results

[illegible]

Parameters Units			Inorganics			PFAS																VOCs					
			Iron mg/L	Manganese mg/L	Total Dissolved Solids (TDS) mg/L	6:2 FTS ng/L	NEtFOSAA ng/L	NMeFOSAA ng/L	PFBS ng/L	PFBA ng/L	PFDS ng/L	PFDA ng/L	PFHpS ng/L	PFHpA ng/L	PFHxS ng/L	PFHxA ng/L	PFNA ng/L	FOSA ng/L	PFOS ng/L	PFOA ng/L	PFPeS ng/L	PFPeA ng/L	1,1- Dichloroethane ug/L	cis-1,2- Dichloroethene ug/L	Tetrachloroethene ug/L	Trichloroethene ug/L	Vinyl Chloride ug/L
Groundwater Surface Water Interface	Nonresidential Drinking Water	--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13	
	Residential Health Based Drinking Water	0.3	0.05	--	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2	
	Residential VIAP	2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Nonresidential VIAP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1	
	Res Fiero SSVIAC SOG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18	
	Res Fiero SSVIAC BASE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2	
	NR Fiero SSVIAC <50k SOG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2	
	NR Fiero SSVIAC <50k BASE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260	
	NR Fiero SSVIAC >50k SOG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120	
	NR Fiero SSVIAC >50k BASE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390	
Sample Location	Sample Date	Sample Type																									
MWM16-02	10/15/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/12/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/28/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/14/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	11/12/2024	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
MWM16-31	10/23/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/2/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/10/2019	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/10/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/16/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
MWM16-37	10/12/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/28/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/14/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/20/2016		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	4/25/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/23/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/2/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/10/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/16/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/16/2020	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
MWM2-22	10/13/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/13/2021	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/29/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/29/2022	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	4/25/2023		--	--	--	< 6.9 U	< 6.9 U	< 6.9 U	1.4 J	6.4	< 3.5 U	< 3.5 U	< 3.5 U	1.5 J	5.8	1.9 J	< 3.5 U	< 3.5 U	4.4	2.5 J	0.93 J	2.0 J	--	--	--	--	
	9/14/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/14/2023	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	11/12/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/28/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	27	14	42	15	18	
	5/1/2023		--	--	--	< 80 U	< 80 U	< 80 U	< 40 U	27 J	< 40 U	< 40 U	< 40 U	15 J	< 40 U	28 J	< 40 U	< 40 U	77	28 J	< 40 U	26 J	--	--	--	--	
MWM30-01	9/25/2023		--	--	--	< 80 U	2.0 J	< 7.2 U	7.4	28	< 3.6 U	1.9 J	< 3.6 U	14	8.7	28	5.4	< 3.6 U	95	26	< 3.6 U	27	16	14	8	8	12
	9/25/2023	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	14	9	9	12	
	11/5/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18	11	2	5	12	
	4/25/2023		--	--	--	34 J	< 8.1 U	< 8.1 U	4.6	24 J	< 4.0 U	< 4.0 U	< 4.0 U	15	8.3	20	< 4.0 U	< 4.0 U	< 4.0 U	45	2.4 J	18	--	--	--	--	
	9/14/2023		--	--	--	37 J	< 7.1 U	< 7.1 U	< 3.5 U	--	< 3.5 U	< 3.5 U	< 3.5 U	16	12	23	< 3.5 U	< 3.5 U	< 3.5 U	54	2.6 J	21	--	--	--	--	
MWM31-02	5/29/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1	< 1	< 1	< 1	< 1	
	11/8/2024		--	--	--	27.8 J	< 4.0 U	< 4.0 U	< 3.5 UJ	< 4.0 UJ	< 3.9 U	< 4.0 U	< 3.8 U	16.2	13.7	14.1	< 4.0 U	< 4.0 U	4.7	39.7	< 3.8 U	12.8	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	11/8/2024	Duplicate	--	--	--	30.3 J	< 3.9 U	< 3.9 U	19.0 J	< 3.9 UJ	< 3.8 U	< 3.9 U	< 3.7 U	15.6	14.3	17.6	< 3.9 U	< 3.9 U	5.2	39.6	< 3.7 U	14.8	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/24/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/2/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
MWM32-01	10/10/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/16/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/13/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/29/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/19/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
MWOS-01	10/23/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/2/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/10/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/16/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/13/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/29/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	5/1/2023		--	--	--	< 80 U	< 80 U	< 80 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	--	--	--	--	--		
	9/14/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--								

Parameters Units			Inorganics			PFAS																VOCs					
			Iron	Manganese	Total Solids (TDS)	6:2 FTS	NEtFOSAA	NMeFOSAA	PFBS	PFBA	PFDS	PFDA	PFHpS	PFHpA	PFHxS	PFHxA	PFNA	FOSA	PFOS	PFOA	PFPeS	PFPeA	1,1- Dichloroethane	cis-1,2- Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl Chloride
			mg/L	mg/L	mg/L (TDS)	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Groundwater Surface Water Interface			--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13
Nonresidential Drinking Water			0.3	0.05	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2	
Residential Health Based Drinking Water			2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Residential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1	
Nonresidential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18	
Res Fiero SSVIAC SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2	
Res Fiero SSVIAC BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2	
NR Fiero SSVIAC <50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260	
NR Fiero SSVIAC <50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120	
NR Fiero SSVIAC >50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390	
NR Fiero SSVIAC >50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180	
Sample Location	Sample Date	Sample Type																									
MWOS-04	9/30/2022		--	0.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/13/2023		--	0.311	--	< 8.0 U	< 8.0 U	< 8.0 U	4.3	7.9	< 4.0 U	< 4.0 U	< 4.0 U	1.5 J	6.8	2.9 J	< 4.0 U	< 4.0 U	9.5	7	1.6 J	2.5 J	< 1 U	< 1 U	< 1 U	< 1 U	
	11/8/2024		0.66	0.401	1,340	< 1.9 U	< 2.0 U	< 2.0 U	4.7	6.1	< 2.0 U	< 2.0 U	< 1.9 U	< 2.0 U	6.3	< 2.0 U	< 2.0 U	< 2.0 U	7.8	5.1	< 1.9 U	< 2.0 U	< 1 U	< 1 U	< 1 U	< 1 U	
	10/3/2022		--	0.103	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	9/13/2023		--	0.234 J	--	< 7.4 U	< 7.4 U	< 7.4 U	< 3.7 U	< 3.7 UJ	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	< 3.7 U	--	--	--	--	--	
MWOS-05	11/7/2024		6.95	0.192	1,510	< 9.9 U	< 10.4 U	< 10.4 U	< 9.2 U	< 10.4 UJ	< 10.0 U	< 10.4 U	< 9.9 U	< 10.4 U	< 9.5 U	< 10.4 U	< 10.4 U	< 10.4 U	< 9.6 U	< 10.4 U	< 9.8 U	< 10.4 U	--	--	--	--	
	10/3/2022		--	1.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	4/27/2023		--	--	--	< 6.9 U	< 6.9 U	< 6.9 U	2.9 J	12	< 3.5 U	< 3.5 U	< 3.5 U	< 3.5 U	2.3 J	< 3.5 U	< 3.5 U	< 3.5 U	2.7 J	2.1 J	< 3.5 U	2.5 J	--	--	--	--	
	9/13/2023		--	0.901 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	11/8/2024		19.8	1.58	790	< 19.8 U	< 20.8 U	< 20.8 U	< 18.4 U	< 20.8 U	< 20.1 U	< 20.8 U	< 19.8 U	< 20.8 U	< 18.9 U	< 20.8 U	< 20.8 U	< 20.8 U	< 19.2 U	< 20.8 U	< 19.5 U	< 20.8 U	--	--	--	--	
MWW01-SEN02	11/8/2024	Duplicate	20.2	1.53	852	< 19.9 U	< 21.0 U	< 21.0 U	< 18.6 U	31.4	< 20.2 U	< 21.0 U	< 19.9 U	< 21.0 U	< 19.1 U	< 21.0 U	< 21.0 U	< 21.0 U	< 19.4 U	< 21.0 U	< 19.7 U	< 21.0 U	--	--	--	--	
	2/19/2013		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	6/26/2013		--	0.640 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	12/4/2013		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/20/2016		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U
	4/26/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U
	10/26/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U
	10/8/2019		20.6	0.294	1,280	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/16/2020		--	<0.005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/12/2021		100	<0.005 U	934	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	2/19/2013		--	0.16 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	6/25/2013		--	0.13 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	12/3/2013		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
MWW01-SEN03	5/18/2016		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/21/2016		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	4/27/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/27/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/5/2018		21.1	0.477	1,110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/10/2019		1.02	0.279	704	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/15/2020		9.43	0.195	84.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/12/2021		11.4	0.269	1,010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/28/2022		17.3	0.308	1,230	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/21/2023		22.4	0.451	1,570	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	11/7/2024		20.6 J	0.554	1,420	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MWW01-SEN04																											

			Inorganics			PFAS																VOCs				
			Iron	Manganese	Total Dissolved Solids (TDS)	6:2 FTS	NEtFOSAA	NMeFOSAA	PFBS	PFBA	PFDS	PFDA	PFHpS	PFHpA	PFHxS	PFHxA	PFNA	FOSA	PFOS	PFOA	PFPeS	PFPeA	1,1-Dichloroethane	cis-1,2-Dichloroethene	Tetrachloroethene	Trichloroethene
Parameters Units			mg/L	mg/L	mg/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L
Groundwater Surface Water Interface	Nonresidential Drinking Water		0.3	0.05	--	--	--	--	670,000	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13
	Residential Health Based Drinking Water		2.0	0.86	--	--	--	--	420	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2
	Residential VIAP		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1
	Nonresidential VIAP		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18
	Res Fiero SSVIAC SOG		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2
	Res Fiero SSVIAC BASE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2
	NR Fiero SSVIAC <50k SOG		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260
	NR Fiero SSVIAC <50k BASE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120
	NR Fiero SSVIAC >50k SOG		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390
	NR Fiero SSVIAC >50k BASE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180
MWW1-04	Sample Location	Sample Date	Sample Type																							
		12/21/2016	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		4/19/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		7/20/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/25/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/26/2017	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		1/16/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/4/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/4/2018	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/7/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/16/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/31/2021		30	--	328	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/29/2022		30	--	416	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		5/2/2023		--	--	--	< 7.1 U	8.9	< 7.1 U	< 3.5 U	< 3.5 U	< 3.5 U	< 3.5 U	4.1	< 3.5 U	< 3.5 U	1.2 J	98	2.8 J	< 3.5 U	< 3.5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/15/2023		0.56	--	340	< 7.8 U	15	1.0 J	< 3.9 U	< 4.0 U	0.88 J	< 3.9 U	3.1 J	4.5	< 3.9 U	1.3 J	1.7 J	6.8	< 3.9 U	5.2	--	--	--	--	--
MWW1-06		11/8/2024	< 0.02 U	< 0.005 U	500	< 3.8 U	11.4	< 4.0 U	< 3.5 U	< 4.0 UJ	< 3.8 U	< 4.0 U	< 3.8 U	< 4.0 U	6.7	< 4.0 U	< 4.0 U	< 4.0 U	98.6	6.5	< 3.7 U	< 4.0 U	--	--	--	--
		9/13/2023	--	--	--	16	< 8.2 U	< 8.2 U	2.7 J	6.1	< 4.1 U	< 4.1 U	< 4.1 U	1.3 J	0.96 J	1.3 J	< 4.1 U	< 4.1 U	22	6.8	< 4.1 U	0.92 J	--	--	--	--
		11/7/2024	5.27	0.27	514	< 9.5 U	< 10 U	< 10 U	< 8.8 U	< 10 U	< 9.6 U	< 10 U	< 9.5 U	< 10 U	< 9.1 U	< 10 U	< 10 U	< 10 U	< 9.2 U	< 10 U	< 9.4 U	< 10 U	--	--	--	--
MWW1-15		10/3/2018	9.07	0.236	794	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/8/2019	5.04	0.207	724	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/15/2020	6.91	0.216	654	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/15/2021	11.2	0.305	1,110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/26/2022	12.1	0.368	1,250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
MWW5-01		9/18/2023	13.4	0.354	1,490	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		5/19/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/20/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		5/25/2017	0.2	0.086	554	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10/1/2018	2.18	0.52	810	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
MWW5-01R		10/9/2019	15	4.27	926	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5/12/2020	4.58	--	1,920	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10/1/2018	2.18	0.52	810	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/9/2019	15	4.27	926	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		9/28/2022	10	0.634	1,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
SEEPVAULT		9/21/2023	13.4	0.825	942	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		4/26/2023	--	--	--	< 80 U	< 80 U	< 80 U	< 40 U	14 J	< 40 U	< 40 U	< 40 U	< 40 U	12 J	< 40 U	< 40 U	< 40 U	< 40 U	100	11 J	< 40 U	< 40 U	--	--	--
		11/7/2024	13.0 J	0.463	1,680	< 19.6 U	< 20.6 U	< 20.6 U	< 18.2 U	< 20.6 U	< 19.9 U	< 20.6 U	< 19.6 U	< 20.6 U	< 18.7 U	< 20.6 U	< 20.6 U	< 20.6 U	< 20.6 U	105	< 20.6 U	< 19.4 U	< 20.6 U	--	--	--
TW-09-02		2/20/2013	--	1.1 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.24 J	< 1 U	< 1 U	< 1 U	< 1 U
		6/24/2013	--	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.38 J	< 1 U	< 1 U	< 1 U	< 1 U
		10/1/2018	4.71	0.561	1,460	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/9/2019	0.55	0.133	1,230	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		5/12/2020	1.71	--	686	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-10-01		10/15/2020	3	0.308	7,400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		10/15/2021	5.05	0.727	914	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/28/2022	10.1	0.981	920	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/25/2023	4.8	0.543	1,160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		2/18/2013	--	0.14 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TW-10-02		6/24/2013	--	0.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		12/3/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/19/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
		9/18/2023	--	--	--	24 J	< 7.7 U	< 7.7 U	43	--	< 3.8 U	< 3.8 U	3.1 J	7	47 J	45 J	< 3.8 U	< 3.8 U	81 J	15 J	13 J	< 3.8 U	--	--	--	--
		11/5/2024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-10-02		2/19/2013	--	0.400 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.1	0.49 J	< 1.0 U	0.23 J	< 1.0 U
		6/25/2013	--	0.440 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26	0.38 J	< 1.0 U	0.19 J	< 1.0 U
		12/3/2013	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	< 1.0 U	< 1.0 U	0.18 J	< 1.0 U
		5/18/2016	--	0.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.4	0.36 J	< 1.0 U	0.24 J	< 1.0 U
		10/1/2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10/9/2019	--	--	--	--	--	--	--	--	--	--</														

Parameters Units			Inorganics			PFAS																VOCs				
			Iron mg/L	Manganese mg/L	Total Dissolved Solids (TDS) mg/L	6:2 FTS ng/L	NEtFOSAA ng/L	NMeFOSAA ng/L	PFBS ng/L	PFBA ng/L	PFDS ng/L	PFDA ng/L	PFHpS ng/L	PFHpA ng/L	PFHxS ng/L	PFHxA ng/L	PFNA ng/L	FOSA ng/L	PFOS ng/L	PFOA ng/L	PFPeS ng/L	PFPeA ng/L	1,1- Dichloroethane ug/L	cis-1,2- Dichloroethene ug/L	Tetrachloroethene ug/L	Trichloroethene ug/L
Groundwater Surface Water Interface	Nonresidential Drinking Water	--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13
	Residential Health Based Drinking Water	0.3	0.05	--	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2
	Residential VIAP	2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Nonresidential VIAP	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1
	Res Fiero SSVIAC SOG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18
	Res Fiero SSVIAC BASE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2
	NR Fiero SSVIAC <50k SOG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2
	NR Fiero SSVIAC <50k BASE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260
	NR Fiero SSVIAC >50k SOG	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120
	NR Fiero SSVIAC >50k BASE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390
Sample Location	Sample Date	Sample Type	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180
			12/21/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TW-MD-01	12/21/2016	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	4/26/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	5/24/2017		7.22	0.971	714	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/3/2018		10.8	1	630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U
	10/8/2019	7.05	0.867	680	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/15/2020	8.48	0.61	616	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/14/2021	1.26	0.725	1,300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/26/2022	1.75	0.498	1,188	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	4/26/2023	--	--	--	< 7.2 U	< 7.2 U	< 7.2 U	1.3 J	2.7 J	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	5.6	1.2 J	< 3.6 U	< 3.6 U	1.3 J	4.6	0.97 J	< 3.6 U	--	--	--	--	--
	9/19/2023	0.97	0.404	968	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TW-MD-02	7/29/2014	--	1.4	680	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/14/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	2/11/2015	--	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/31/2015	--	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/20/2015	--	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/24/2017	14	0.917	678	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8/17/2017	14.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/3/2018	14.3	0.747	620	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/8/2019	11.2	0.501	728	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/15/2020	13.2	0.854	774	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
10/14/2021	11.3	0.912	1,270	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
TW-MD-03	9/27/2022	9.52	0.968	1,390	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/19/2023	10.6	1.13	1,680	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	11/12/2024	5.54	0.597	1,620	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/29/2014	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	2/18/2015	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2/18/2015	--	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/31/2015	--	0.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/20/2015	--	0.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/20/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TW-MD-04	5/25/2017	9.49	0.52	726	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/3/2018	18	0.82	1,180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/8/2019	2.03	--	780	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/14/2020	8.58	0.288	694	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/14/2021	8.48	0.741	840	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/27/2022	8.7	1.64	1,390	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/19/2023	15	1.84	1,810	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	7/30/2014	--	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7/30/2014	--	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
TW-MD-05	9/4/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
	2/18/2015	--	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/31/2015	--	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/20/2015	--	0.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/24/2017	10.7	0.353	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/24/2017	11.3	0.341	728	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10/3/2018	21.9	1.16	1,700	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/9/2019	13.8	0.571	792	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/14/2020	11.8	0.44	658	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/14/2021	11.7	0.462	788	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
TW-MD-05	9/27/2022	11.7	0.356	1,300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	7/30/2014	--	0.65	620	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9/5/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	2/18/2015	--	0.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/1/2015	--	0.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/20/2015	--	0.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/20/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	4/24/2017	13.9	0.414	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	4/24/2017	22.2	0.807	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5/																									

Parameters Units			Inorganics			PFAS																VOCs						
			Iron mg/L	Manganese mg/L	Total Dissolved Solids (TDS) mg/L	6:2 FTS ng/L	NEtFOSAA ng/L	NMeFOSAA ng/L	PFBS ng/L	PFBA ng/L	PFDS ng/L	PFDA ng/L	PFHpS ng/L	PFHpA ng/L	PFHxS ng/L	PFHxA ng/L	PFNA ng/L	FOSA ng/L	PFOS ng/L	PFOA ng/L	PFPeS ng/L	PFPeA ng/L	1,1- Dichloroethane ug/L	cis-1,2- Dichloroethene ug/L	Tetrachloroethene ug/L	Trichloroethene ug/L	Vinyl Chloride ug/L	
Groundwater Surface Water Interface	Nonresidential Drinking Water		0.3	0.05	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13		
	Residential Health Based Drinking Water		2.0	0.86	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2		
	Residential VIAP		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1		
	Nonresidential VIAP		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18		
	Res Fiero SSVIAC SOG		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2		
	Res Fiero SSVIAC BASE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2		
	NR Fiero SSVIAC <50k SOG		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260		
	NR Fiero SSVIAC <50k BASE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120		
	NR Fiero SSVIAC >50k SOG		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390		
	NR Fiero SSVIAC >50k BASE		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180		
Sample Location	Sample Date	Sample Type																										
TW-MD-06	9/27/2022		10.4	0.398	1,190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	9/20/2023		10.3	0.369	1,530	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	11/7/2024		7.49 J	0.31	1,740	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	8/1/2014		--	1.6	910	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	9/9/2014		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	2/25/2015		--	1.3 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	4/1/2015		--	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	5/20/2015		--	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	4/24/2017		21.2	0.738	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	5/25/2017		17.2	0.634	1,138	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	8/17/2017		22.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
	10/4/2018		24.9	0.947	1,080	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	10/9/2019		9.57	0.435	884	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	10/14/2020		8.2	0.276	678	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	10/14/2021		9.84	0.419	730	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	9/27/2022		11.3	0.437	1,260	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
	TW-MD-07	7/30/2014		--	0.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
9/5/2014			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U		
2/25/2015			--	0.21 B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
4/1/2015			--	0.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
4/1/2015		Duplicate	--	0.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
5/20/2015			--	0.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
12/20/2016			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U			
4/24/2017			13.3	0.257	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
5/25/2017			12.9	0.134	1,006	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
10/4/2018			23.9	0.201	958	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
10/9/2019			10	0.378	1,220	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
10/14/2020			24.3	0.47	1,820	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
10/14/2021			34.6	0.547	3,040	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
9/27/2022			16.8	0.433	1,220	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
9/19/2023			18.1	0.414	1,760	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U		
FIERO																												
MW-02-17		4/21/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	12	1	< 1 U	
	7/20/2017	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	5	2	< 1 U		
	7/20/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	5	2	< 1 U		
	10/23/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	10	2	< 1 U		
	1/15/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	11	2	< 1 U		
	10/2/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	6	2	< 1 U		
	10/7/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	10	4	< 1 U		
	10/13/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	3	2	< 1 U		
	10/19/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	< 1 U	5	7	< 1 U		
	6/7/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	8	2	< 1 U		
	10/19/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	< 1 U	5	7	< 1 U		
	12/14/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	1	< 1 U	7	< 1 U		
	3/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	3	5	< 1 U		
	3/22/2022	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	4	5	< 1 U		
	5/31/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	3	5	< 1 U		
	9/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	8	2	< 1 U		
	11/29/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	< 1 U	7	< 1 U	< 1 U		
	4/25/2023		--	--	--	< 8.0 U	< 8.0 U	< 8.0 U	9.3	12	< 4.0 U	< 4.0 U	< 4.0 U	6.4	10	11	< 4.0 U	< 4.0 U	< 4.0 U	7.7	5.8	7.2	--	--	--	--		
	6/6/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	5	5	< 1 U		
	9/12/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	1	7	4	< 1 U		
	12/1/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2	6	7	< 1 U		
	3/27/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	3	2	6	< 1 U		
	MW-05-18	9/6/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	1	3	4	< 1 U		
		10/1/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4	< 6	< 1 U	< 1 U	< 1 U	
		10/1/2018	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 4	< 6	< 1 U	< 1 U	< 1 U	
10/7/2019			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	13	< 1 U	< 1 U	< 1 U		
8/31/2020			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	3	< 1 U	< 1 U	< 1 U		
10/13/2020			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	12	< 1 U	< 1 U	< 1 U		
12/7/2020			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8	15	< 1 U	< 1 U	< 1 U		
3/9/2021			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	11	< 1 U	< 1 U	< 1 U		
6/7/2021			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	11	< 1 U	< 1 U	< 1 U		
10/18/2021			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	10	< 1 U	< 1 U	< 1 U		
3/22/2022			--																									

[illegible]

Parameters Units			Inorganics			PFAS																VOCs					
			Iron	Manganese	Total Dissolved Solids (TDS)	6:2 FTS	NetFOSAA	NMeFOSAA	PFBS	PFBA	PFDS	PFDA	PFHpS	PFHpA	PFHxS	PFHxA	PFNA	FOSA	PFOS	PFOA	PFPeS	PFPeA	1,1- Dichloroethane	cis-1,2- Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl Chloride
			mg/L	mg/L	mg/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Groundwater Surface Water Interface			--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13
Nonresidential Drinking Water			0.3	0.05	--	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2
Residential Health Based Drinking Water			2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Residential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1
Nonresidential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18
Res Fiero SSVIAC SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2
Res Fiero SSVIAC BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2
NR Fiero SSVIAC <50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260
NR Fiero SSVIAC <50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120
NR Fiero SSVIAC >50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390
NR Fiero SSVIAC >50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180
Sample Location	Sample Date	Sample Type																									
MWF16-23	9/1/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	11	< 1 U	23	< 1 U
	9/1/2020	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8	10	< 1 U	21	< 1 U
	10/15/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	10	< 1 U	21	< 1 U
	12/8/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	11	< 1 U	20	< 1 U
	12/8/2020	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	11	< 1 U	21	< 1 U
	3/9/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	11	< 1 U	21	< 1 U
	3/9/2021	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	11	< 1 U	21	< 1 U
	6/2/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	11	< 1 U	20	< 1 U
	6/2/2021	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	11	< 1 U	20	< 1 U
	10/13/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	3	< 1 U	18	< 1 U
	12/15/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	2	< 1 U	16	< 1 U
	3/24/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	5	< 1 U	13	< 1 U
	6/1/2022		0.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	5	< 1 U	16	< 1 U
	9/20/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	12	< 1 U	17	< 1 U
	9/20/2022	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	12	< 1 U	18	< 1 U
	11/30/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	11	< 1 U	17	< 1 U
	11/30/2022	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	11	< 1 U	17	< 1 U
	3/7/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	7	< 1 U	16	< 1 U
	4/25/2023		--	--	--	< 6.9 U	< 6.9 U	< 6.9 U	6.7	9.8	< 3.5 U	< 3.5 U	1.3 J	23	26	12	< 3.5 U	< 3.5 U	< 3.5 U	63	6.1	14	--	--	--	--	--
	6/6/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	8	< 1 U	21	< 1 U
	8/29/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	3	< 1 U	16	< 1 U
	9/12/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	2	< 1 U	15	< 1 U
	11/30/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	2	1	15	< 1 U
	3/29/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	< 1 U	3	9	< 1 U
	9/24/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	7	10	< 1 U
MWF16-25	10/1/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 3	< 5	< 1 U	< 1 U	< 1 U	
	10/7/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	8	< 1 U	< 1 U	< 1 U	
	9/1/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	9	< 1 U	< 1 U	< 1 U	
	10/15/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	9	< 1 U	< 1 U	< 1 U	
	12/9/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	8	< 1 U	< 1 U	< 1 U	
	3/12/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	12	< 1 U	< 1 U	< 1 U	
	6/2/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	16	< 1 U	< 1 U	< 1 U	
	10/13/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	22	< 1 U	< 1 U	< 1 U	
	3/24/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	27	< 1 U	< 1 U	< 1 U	
	6/1/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	35	< 1 U	< 1 U	< 1 U	
	9/23/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	38	< 1 U	< 1 U	< 1 U	
	11/30/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	43	< 1 U	< 1 U	< 1 U	
	6/8/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	40	< 1 U	< 1 U	< 1 U	
	9/12/2023		--	--	--	< 8.0 U	--	--	12	13	--	--	< 4.0 U	8	22	13	--	--	< 4.0 U	20	10	9.2	3	44	< 1 U	< 1 U	< 1 U
	11/29/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	41	< 1 U	< 1 U	< 1 U	
	3/28/2024		--	--</																							

Parameters Units			Inorganics			PFAS																VOCs					
			Iron	Manganese	Total Dissolved Solids (TDS)	6:2 FTS	NEtFOSAA	NMeFOSAA	PFBS	PFBA	PFDS	PFDA	PFHpS	PFHpA	PFHxS	PFHxA	PFNA	FOSA	PFOS	PFOA	PFPeS	PFPeA	1,1- Dichloroethane	cis-1,2- Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl Chloride
			mg/L	mg/L	mg/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L	ug/L
Groundwater Surface Water Interface			--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13
Nonresidential Drinking Water			0.3	0.05	--	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2
Residential Health Based Drinking Water			2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Residential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1
Nonresidential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18
Res Fiero SSVIAC SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2
Res Fiero SSVIAC BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2
NR Fiero SSVIAC <50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260
NR Fiero SSVIAC <50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120
NR Fiero SSVIAC >50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390
NR Fiero SSVIAC >50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180
Sample Location	Sample Date	Sample Type																									
MWF8-01	12/22/2016		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/26/2017		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/4/2018		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/7/2019		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/15/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	6/2/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	10/18/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	9/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
	4/27/2023		--	--	--	< 7.1 U	< 7.1 U	< 7.1 U	3.6	1.6 J	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	< 3.6 U	--	--	--	--	--	
MWOS-09	9/15/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	9/2/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	1	< 1 U	< 1 U	< 1 U	
	12/8/2020		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
MWOS-09R	11/24/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	23	14	5	< 1 U	
	12/15/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	20	11	4	< 1 U	
	3/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	28	10	3	< 1 U	
	3/22/2022	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	26	12	4	< 1 U	
	6/1/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	28	13	4	< 1 U	
	9/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	22	15	3	< 1 U	
	11/30/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	25	13	3	< 1 U	
	3/7/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	28	17	3	< 1 U	
	6/8/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	22	11	3	< 1 U	
	6/8/2023	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	21	12	3	< 1 U	
	8/29/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	19	16	4	< 1 U	
	9/12/2023		--	--	--	3.5 J	--	--	6.3	9.8	--	--	< 3.5 U	10	10	11	--	--	< 3.5 U	19	5	11	--	--	--	--	
	11/30/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	22	14	5	< 1 U	
	11/30/2023	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	21	15	5	< 1 U	
	3/28/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	17	20	5	< 1 U	
	3/28/2024	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	19	17	4	< 1 U	
	9/25/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	18	16	4	< 1 U	
	11/6/2024		--	--	--	< 2.0 U	--	--	7.4	9.5 J	--	--	< 2.0 U	9	17.1	10.5	--	--	< 1.9 U	50	4.2	11.2	--	--	--	--	
MWOS-10	11/24/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/24/2021	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	< 1 U	11	< 1 U	
	12/16/2021		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/16/2021	Duplicate	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	< 1 U	8	< 1 U	
	3/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	6	< 1 U	7	< 1 U	
	6/2/2022		0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	7	< 1 U	9	< 1 U	
	9/22/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	4	< 1 U	8	< 1 U	
	11/30/2022		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	4	< 1 U	7	< 1 U	
	3/7/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	9	< 1 U	11	< 1 U	
	6/12/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	7	< 1 U	12	< 1 U	
	8/28/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	8	< 1 U	10	< 1 U	
	9/12/2023		--	--	--	3.0 J	--	--	7.5	14	--	--	< 4.4 U	11	13	15	--	--	< 4.4 U	10	5	14	--	--	--	--	
	11/30/2023		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	8	< 1 U	9	< 1 U	
	3/8/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	5	< 1 U	10	< 1 U	
	6/24/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2	< 1 U	8	< 1 U	
	9/25/2024		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	
	11/8/2024		--	--	--	< 2.3 U	--	--	5.4	18.5 J	--	--	< 2.3 U	10.4	14.4	27.7	--	--	< 2.2 U	7.2	3.9	21.7	--	--	--	--	

Parameters Units			Inorganics			PFAS															VOCs						
			Iron	Manganese	Total Dissolved Solids (TDS)	6:2 FTS	NEtFOSAA	NMeFOSAA	PFBS	PFBA	PFDS	PFDA	PFHpS	PFHpA	PFHxS	PFHxA	PFNA	FOSA	PFOS	PFOA	PFPeS	PFPeA	1,1- Dichloroethane	cis-1,2- Dichloroethene	Tetrachloroethene	Trichloroethene	Vinyl Chloride
			mg/L	mg/L	mg/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ug/L	ug/L	ug/L	ug/L
Groundwater Surface Water Interface			--	1.3	500	--	--	--	670,000	--	--	--	--	--	210	--	30	--	12	170	--	--	740	620	60	200	13
Nonresidential Drinking Water			0.3	0.05	--	--	--	420	--	--	--	--	--	51	400,000	6	--	16	8	--	--	2,500	70	5	5	2	
Residential Health Based Drinking Water			2.0	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Residential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	95	130	10	2.1	
Nonresidential VIAP			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	300	140	130	10	18	
Res Fiero SSVIAC SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	160	110	250	15	2.2	
Res Fiero SSVIAC BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	62	130	8.1	1.2	
NR Fiero SSVIAC <50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5,300	2,300	3,400	210	260	
NR Fiero SSVIAC <50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2,400	1,100	1,500	93	120	
NR Fiero SSVIAC >50k SOG			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8,000	3,500	5,000	310	390	
NR Fiero SSVIAC >50k BASE			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3,600	1,600	2,200	140	180	
Sample Location	Sample Date	Sample Type																									

Notes:
1) Criteria listed are from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Clean Up Criteria Requirements Table 1: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, October 12, 2023
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, March 2021.
3) Samples denoted with an asterisk (*) are located within 100 feet, or are outside, of the site property boundary and are subject to residential exposure criteria
4) Groundwater Surface Water Interface Criteria listed for manganese are calculated based on a hardness of 150 mg/L-CaCO3 for southern Lower Peninsula protected as a drinking water source.
5) Grey shaded values denotes exceedance and/or equal to Michigan Groundwater Surface Water Interface Criteria.
6) Orange highlighted values denotes exceedance and/or equal to Michigan Non-Residential Drinking Water.
7) Bold values denote exceedance and/or equal to Residential Health Based Drinking Water criteria.
8) Values in italics denotes exceedance and/or equal to Residential Volatilization to Indoor Air Pathway criteria.
9) Values in red denotes exceedance and/or equal to Nonresidential Volatilization to Indoor Air Pathway criteria.
10) Samples were analyzed for PFAS by USEPA Modified 537 with Isotopic Dilution; Metals by SW3015A; VOCs by SW5030C/8260C; and TDS by SM2540C

Abbreviations:
ng/L - Nanograms per liter
mg/L - Milligrams per liter
ug/L - Micrograms per liter
< - Not detected above the laboratory reporting limit
J - Estimated value less than reporting limit, but greater than MDL
PFAS - Per- and Polyfluoroalkyl Substances
R - Sample results are rejected
U - Compound was analyzed for but not detected. The associated value is the compound quantitation limit
VIAP - Volatilization to Indoor Air Pathway
VOCs - Volatile Organic Compounds

Appendix I

Mann-Kendall Analysis and Trend Graphs

Appendix I - Trend Analysis
RACER PNC
April 2025

STATISTICAL ANALYSIS METHODOLOGY

Arcadis conducted statistical analyses to assess whether constituent of concern (COC) concentrations have statistically significantly increasing or decreasing trends at 95 percent confidence. The Mann-Kendall (MK) trend test is a non-parametric test that determines these trends based on ranked data. As such, it is relatively insensitive to outlier values and non-detect concentrations (values less than reporting limits) and does not require the data to fit a specific model. The test has the flexibility to be modified to account for multiple observations per time period, multiple sampling locations, and seasonality (USEPA 2006, 2009).

The MK trend test is performed by listing the concentrations of the constituent of interest in temporal order and computing the differences between a given measurement and earlier measurements (Gilbert 1987; USEPA 2009). The MK test statistic (sum of trend [S]) is the difference between the number of strictly positive differences and the number of strictly negative differences. If S is positive, an increasing trend is indicated; if S is negative, a decreasing trend is indicated; and, if S is near zero, no trend is apparent. Trends with positive or negative S values are accepted as statistically significant for p-values less than or equal to 0.05 (95 percent confidence level). A minimum of four (preferably eight) sampling events per well is needed to run the MK trend test (USEPA, 2009). Where qualified values were used in computations, the concentrations were set equal to the reported value. Based on USEPA guidance (USEPA 2009) for MK analyses, non-detect values are set to a single value less than that of any detections, so that any pair of tied values or any pair of non-detects is given a score of 0 in the calculation of S.

To further consider the stability of COC concentrations, MK analyses with S values near zero were evaluated quantitatively using the coefficient of variation (CV) and qualitatively with visual inspection. The CV is a measure that can be used to assess relative stability. The CV is calculated as the standard deviation divided by the mean (average) concentration of a data set. In general, CV values greater than 1 indicate variability in concentrations over time while CV values less than 1 indicate that concentrations are stable.

Wells from the Groundwater Monitoring Plan (GMP) were considered for analysis. Statistical analyses of COC concentration trends were evaluated using the MK method for monitoring well and constituent pairs that meet the following criteria:

1. At least 7 sampling results.
2. At least 50 percent of concentrations are detected measurements.
3. At least one criteria exceedance in concentration.

An exceedance was considered if concentrations were greater than either the groundwater surface water interface (GSWI) value, nonresidential drinking water criteria, or other criteria on a well-basis (e.g., VIAP or SSVIAC criteria values as applicable). Corresponding screening criteria are displayed on qualifying trend graphs of COC concentrations over time for each well.

TREND ANALYSES CONDUCTED

Based on data from January 2002 to November 2024, a total of 15 data sets qualified for statistical analysis according to the criteria above. Trend results are presented in Table A-1, with corresponding charts in Figures A-1 through B-15.

Among Fiero data sets, 1,4-dioxane at MWF7-02 qualified for statistical analysis, which indicated no statistically significant trend. Considering the CV, p-value, and sign of the S-value, concentrations for this COC are stable to potentially decreasing. The last four sampling results (since October 2021) measure below the corresponding GSWI and nonresidential drinking water criteria (280 and 350 µg/L, respectively).

Among the non-Fiero data sets, four of the qualifying data sets have statistically significantly increasing trends, all of which are within the southern metal fabrication division. Statistically significant increasing trends include total dissolved solids (TDS) MWW01-SEN03, TW-MD-02, TW-MD-05, as well as manganese at MWW01-SEN03.

Four of the qualifying non-Fiero data sets have statistically significantly decreasing trends, all of which are within the southern metal fabrication division. Statistically significant decreasing trends include iron and manganese at TW-MD-02 and TW-MD-05.

The additional non-Fiero qualifying data sets do not have statistically significant trends at the 95% confidence level. Each of the qualifying data sets with no statistically significant trend have CV values less than 1, indicating that concentrations are generally stable. Visual inspection confirms this conclusion, with the exceptions of concentrations of iron at MWW01-SEN03 (potentially increasing concentrations since 2019), manganese at MWW1-02 (historically decreasing concentrations, with a step-increase in concentrations in 2008, which remained elevated during sampling in 2013 and 2024), and vinyl chloride at MWM16-37 (potentially decreasing concentrations since 2016).

REFERENCES

Gilbert, R.O. 1987. Statistical Methods for Environmental Pollution Monitoring. John Wiley and Sons, Inc. New York.

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data and RCRA Facilities Unified Guidance. Office of Resource Conservation and Recovery. March.

TABLE I-1
Mann-Kendall Analysis
RACER PNC
Pontiac, MI
April, 2025

Well ID	Analyte	Date Range	Figure	FOD	Detected Results Summary ¹					Mann-Kendall Test ²			
					Range	Mean	Median	SD	CV	Result ⁴	MK Result Note	P-Value	S Value
Fiero Properties													
MWF7-02	1,4-Dioxane	09/16 - 11/24	I-1	10 / 10	141 - 540	329	270	163	0.50	NST	--	0.078	-17
Offsite													
MWOS-01	Manganese	01/05 - 11/24	I-2	7 / 7	0.078 - 0.7	0.28	0.199	0.22	0.79	NST	5a	0.386	3
MWOS-02	Manganese	01/05 - 11/24	I-3	7 / 7	0.31 - 1.2	0.53	0.438	0.31	0.58	NST	5a	0.191	-7
MWW1-06	Manganese	05/03 - 11/24	I-4	12 / 14	0.1 - 0.53	0.27	0.2805	0.13	0.48	NST	--	0.435	-4
Southern Metal Fabrication Division													
MWW01-SEN03	Total dissolved solids (TDS)	10/18 - 11/24	I-5	7 / 7	704 - 1570	1130	1110	307	0.27	UP	5a	0.035	13
MWW01-SEN03	Iron	10/18 - 11/24	I-6	7 / 7	1 - 22.4	14.8	17.3	7.8	0.53	NST	5a	0.119	9
MWW01-SEN03	Manganese	02/13 - 11/24	I-7	9 / 9	0.13 - 0.55	0.31	0.279	0.15	0.48	UP	--	0.022	20
MWW1-02	Manganese	01/02 - 11/24	I-8	17 / 17	0.19 - 1.3	0.55	0.448	0.3	0.55	NST	--	0.268	-16
TW-MD-02	Total dissolved solids (TDS)	07/14 - 11/24	I-9	9 / 9	620 - 1680	1050	774	437	0.42	UP	--	0.001	28
TW-MD-02	Iron	05/17 - 11/24	I-10	9 / 9	5.5 - 14.4	11.6	11.3	2.9	0.25	DWN	--	0.003	-26
TW-MD-02	Manganese	07/14 - 11/24	I-11	12 / 12	0.5 - 1.9	1.1	0.9425	0.4	0.36	DWN	--	0.027	-29
TW-MD-05	Total dissolved solids (TDS)	07/14 - 11/24	I-12	9 / 9	586 - 1740	947	740	432	0.46	UP	--	0.003	26
TW-MD-05	Iron	04/17 - 11/24	I-13	9 / 9	7.5 - 13.9	10.7	10.4	2.2	0.21	DWN	--	0.006	-24
TW-MD-05	Manganese	07/14 - 11/24	I-14	13 / 13	0.29 - 0.65	0.39	0.38	0.089	0.23	DWN	--	0.044	-29
Northern Metal Fabrication Division													
MWM16-37	Vinyl chloride	12/04 - 11/24	I-15	10 / 12	1 - 9	3.1	2.35	2.2	0.71	NST	--	0.053	-24

Abbreviations:

-- = not applicable
 CV = coefficient of variation (SD / mean)
 FOD = frequency of detection (# detects / # samples)
 mean = arithmetic mean
 SD = standard deviation

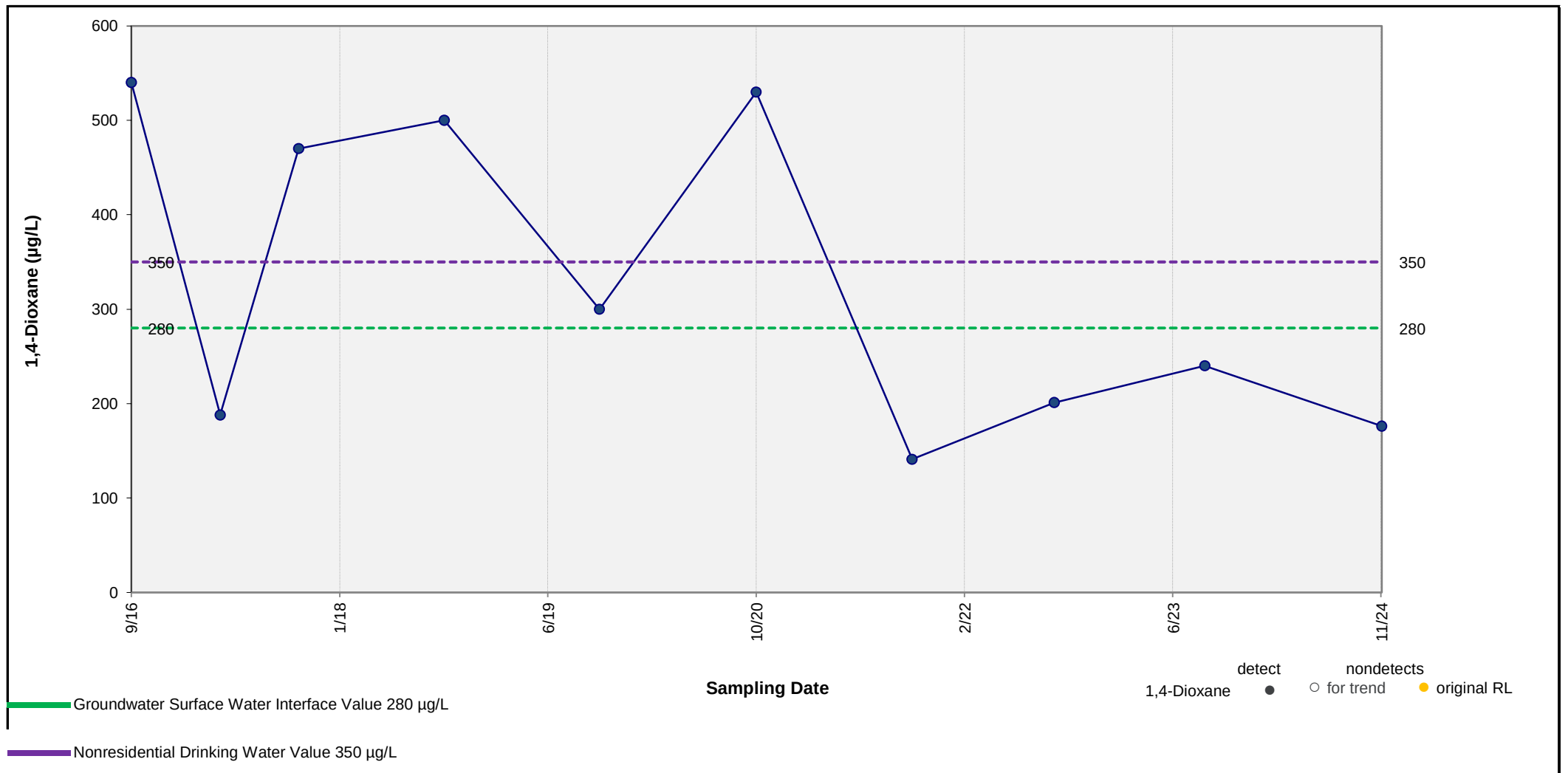
NST = no significant trend
 DWN = downward trend
 UP = upward trend
 MK = Mann-Kendall

Notes:

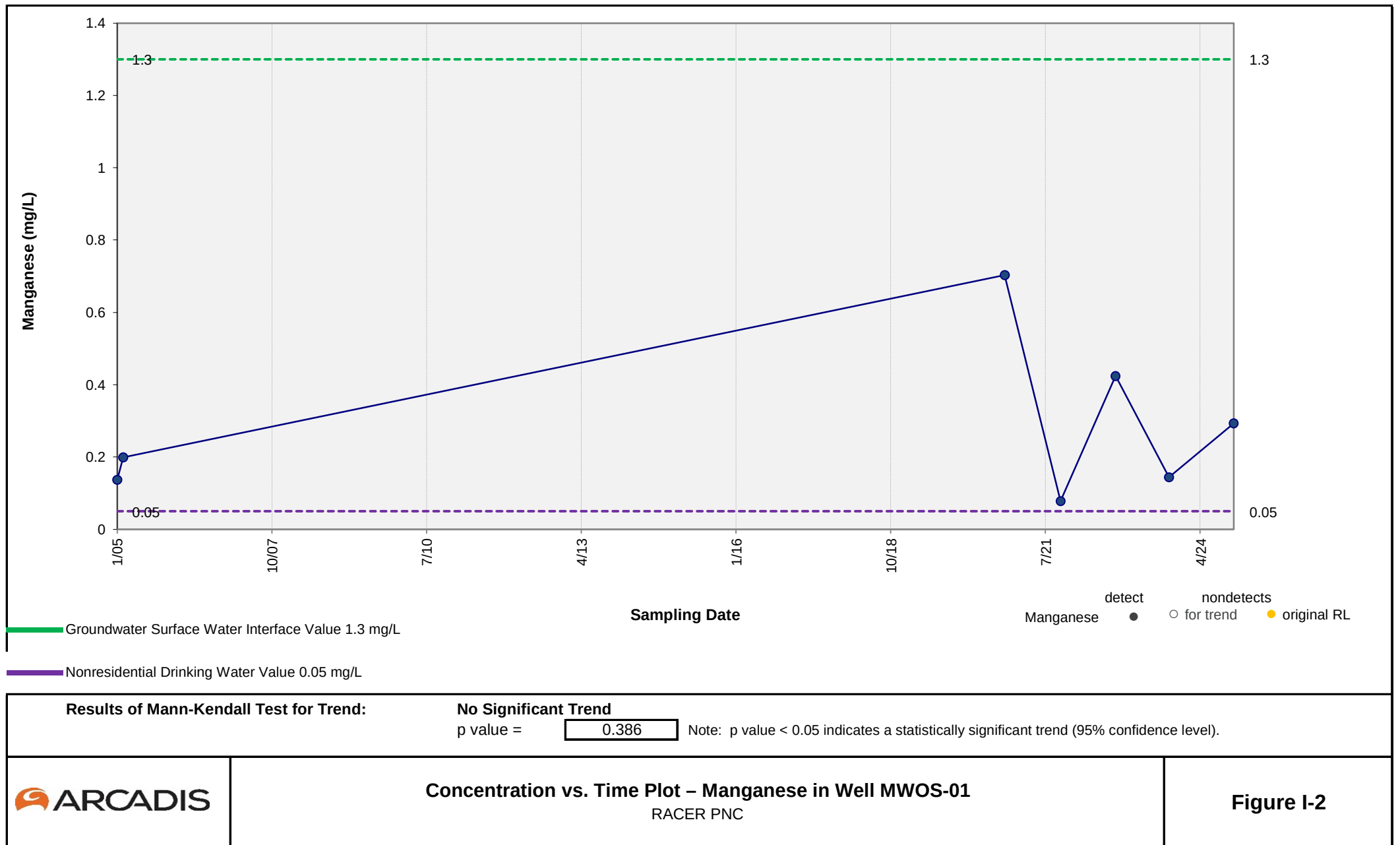
1. TDS, iron, and manganese analytical results are in mg/L; vinyl chloride and 1,4-dioxane analytical results are in µg/L.
2. Trend results are presented when at least seven samples, and 50% detected values, and at least one criteria exceedance are available.
3. Non-detects were assigned a common value less than the minimum detected value, equal to half the minimum reporting limit (RL) in the dataset (USEPA, 2009).
 If half the minimum RL was greater than the minimum detected value, then half the minimum detect was assigned.
4. Statistically significant trend defined as having p-value ≤ 0.05, or 95% confidence.
- 5a. MK Trend results for datasets with fewer than 8 samples may not be reliable and should be treated with caution.

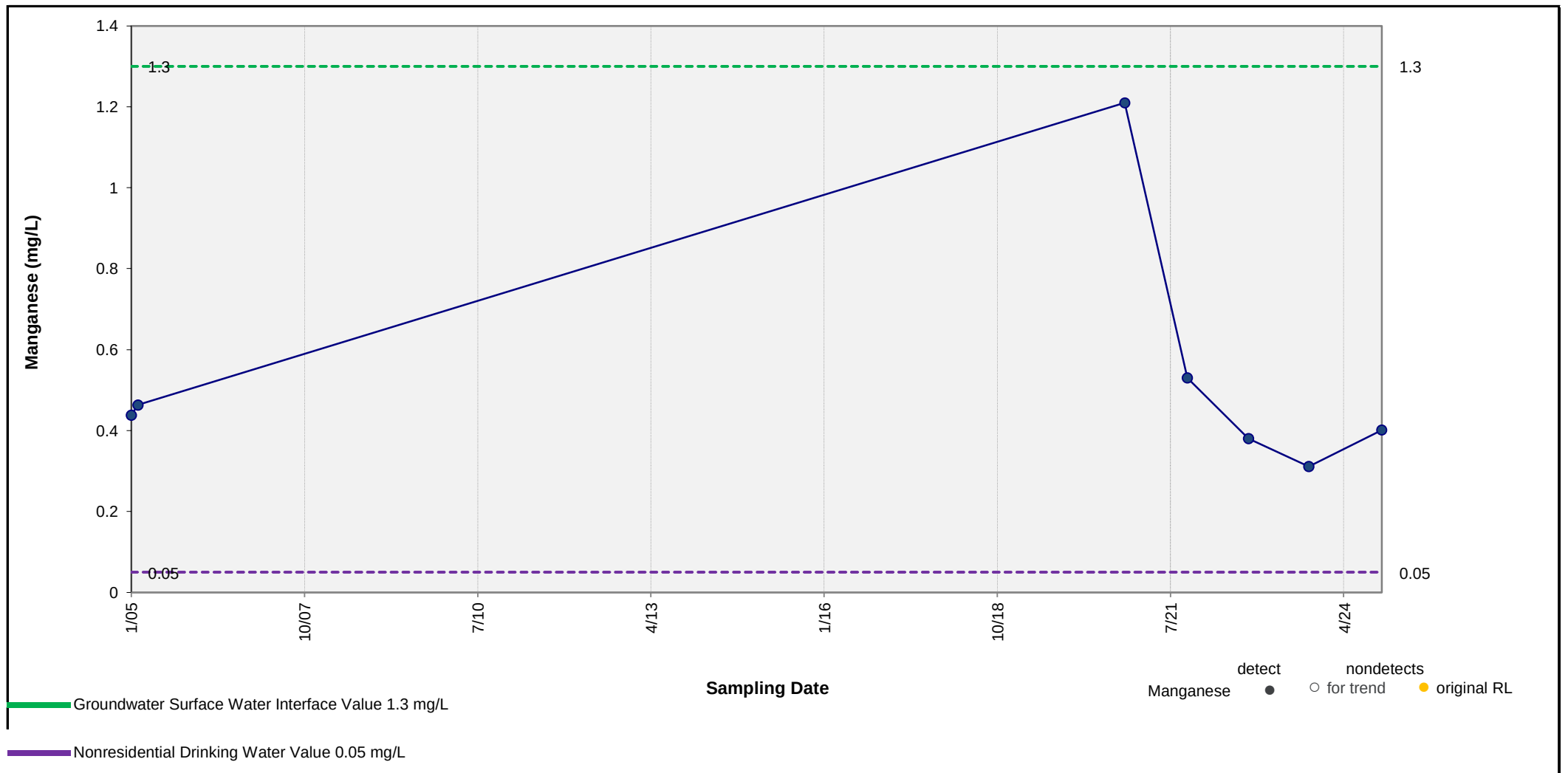
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USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.

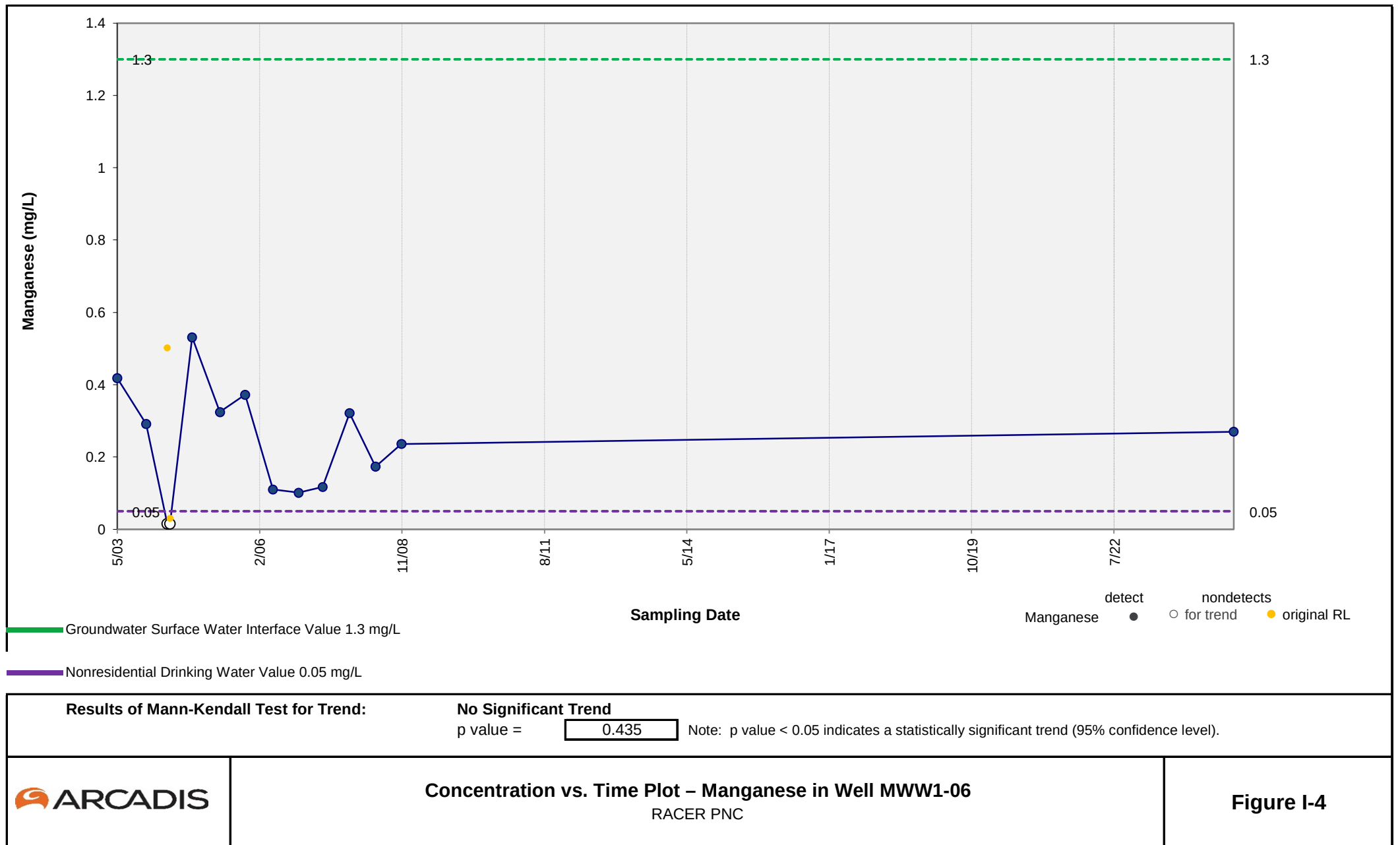


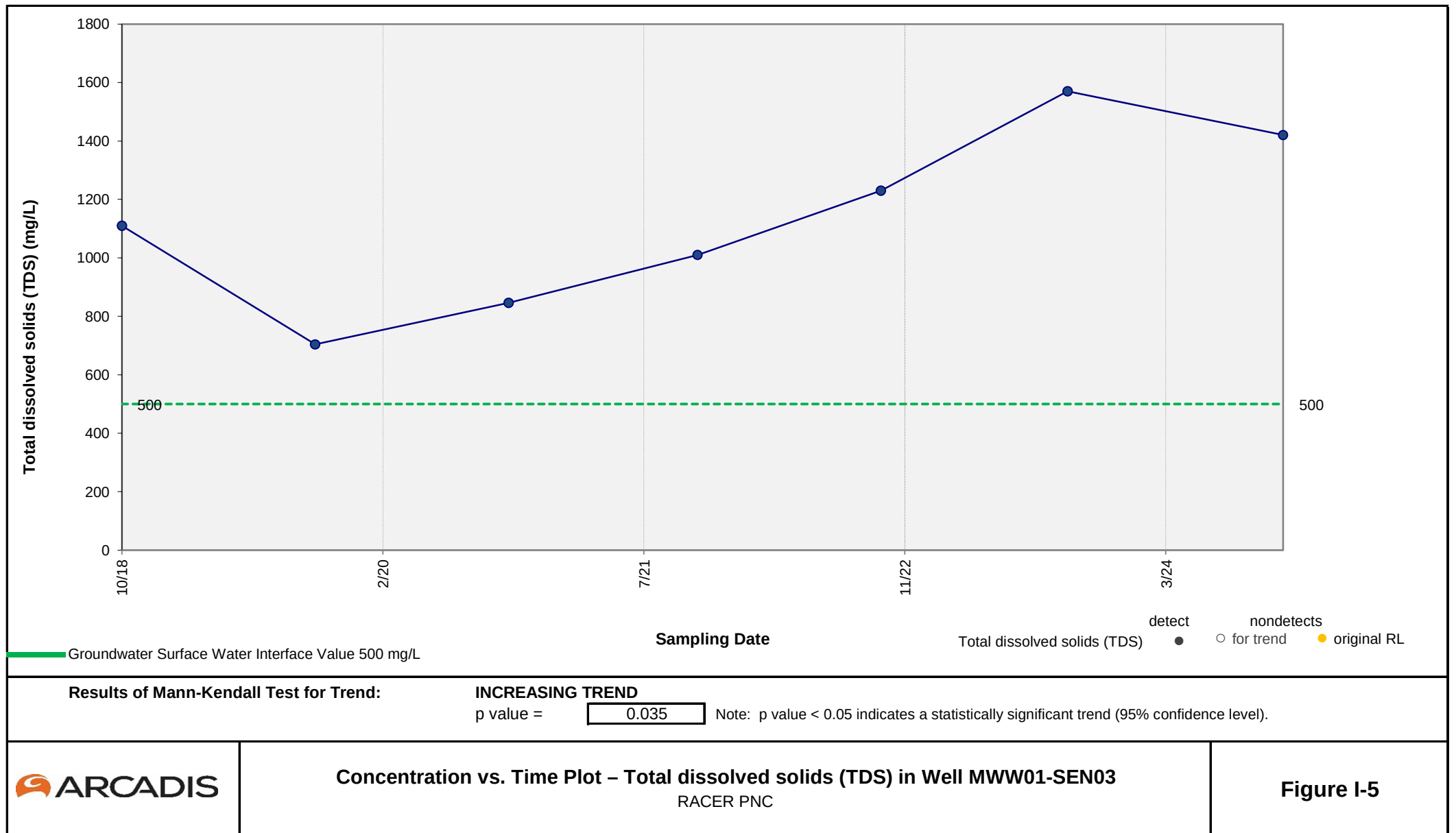
Results of Mann-Kendall Test for Trend: No Significant Trend p value = 0.078 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).		
	Concentration vs. Time Plot – 1,4-Dioxane in Well MWF7-02 RACER PNC	Figure I-1

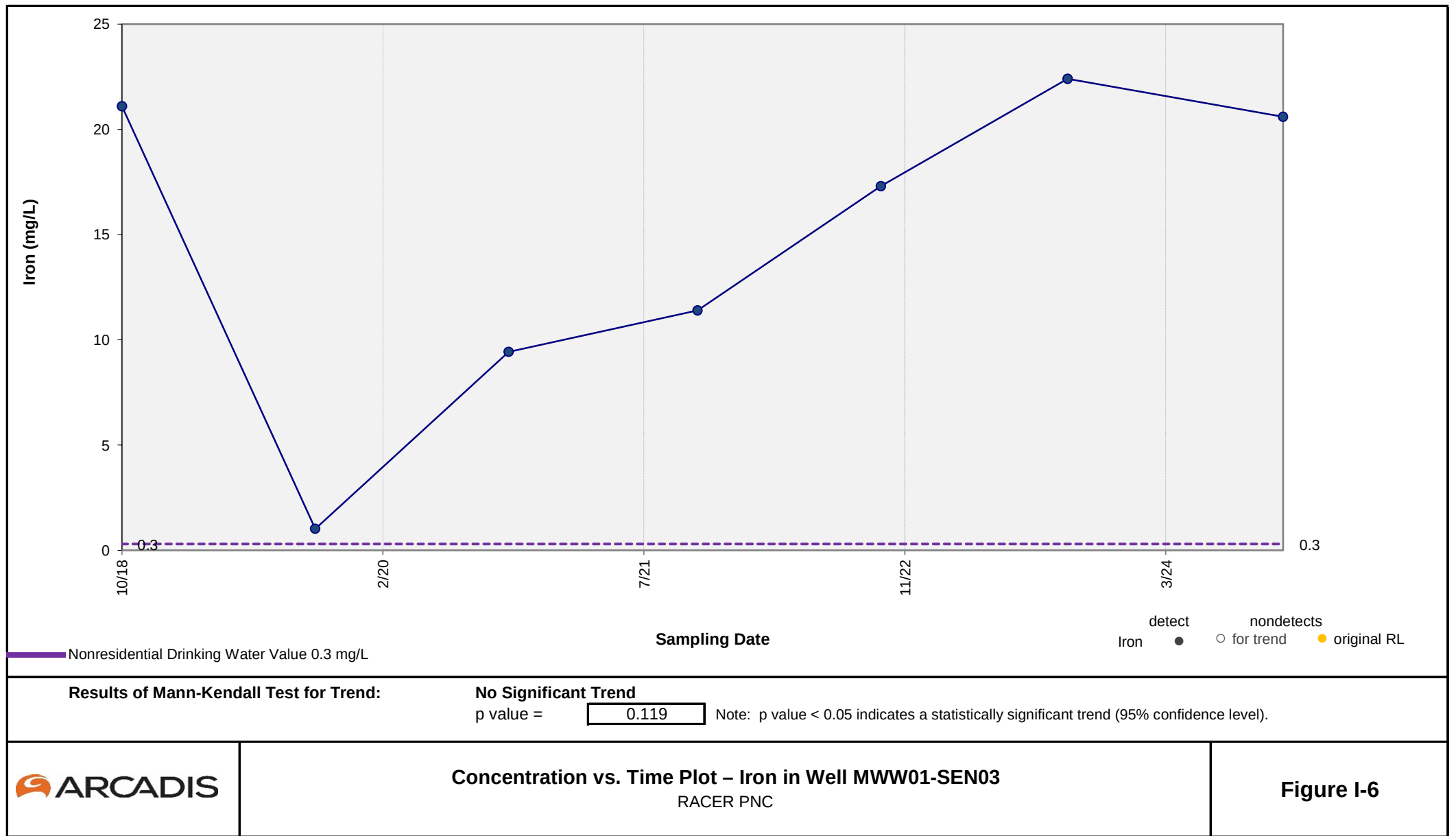


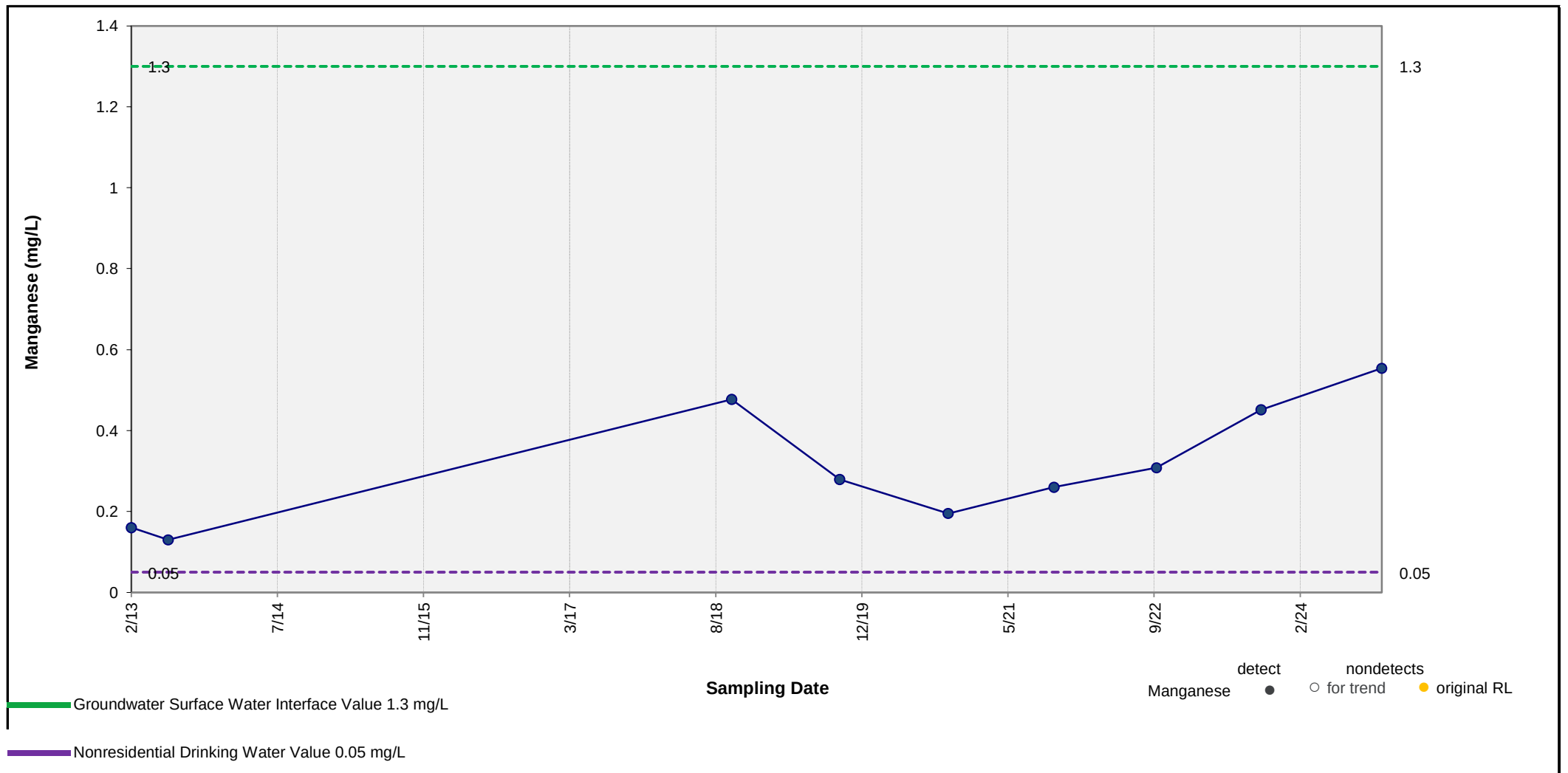


Results of Mann-Kendall Test for Trend: No Significant Trend p value = 0.191 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).		
	Concentration vs. Time Plot – Manganese in Well MWOS-02 RACER PNC	Figure I-3









Results of Mann-Kendall Test for Trend:

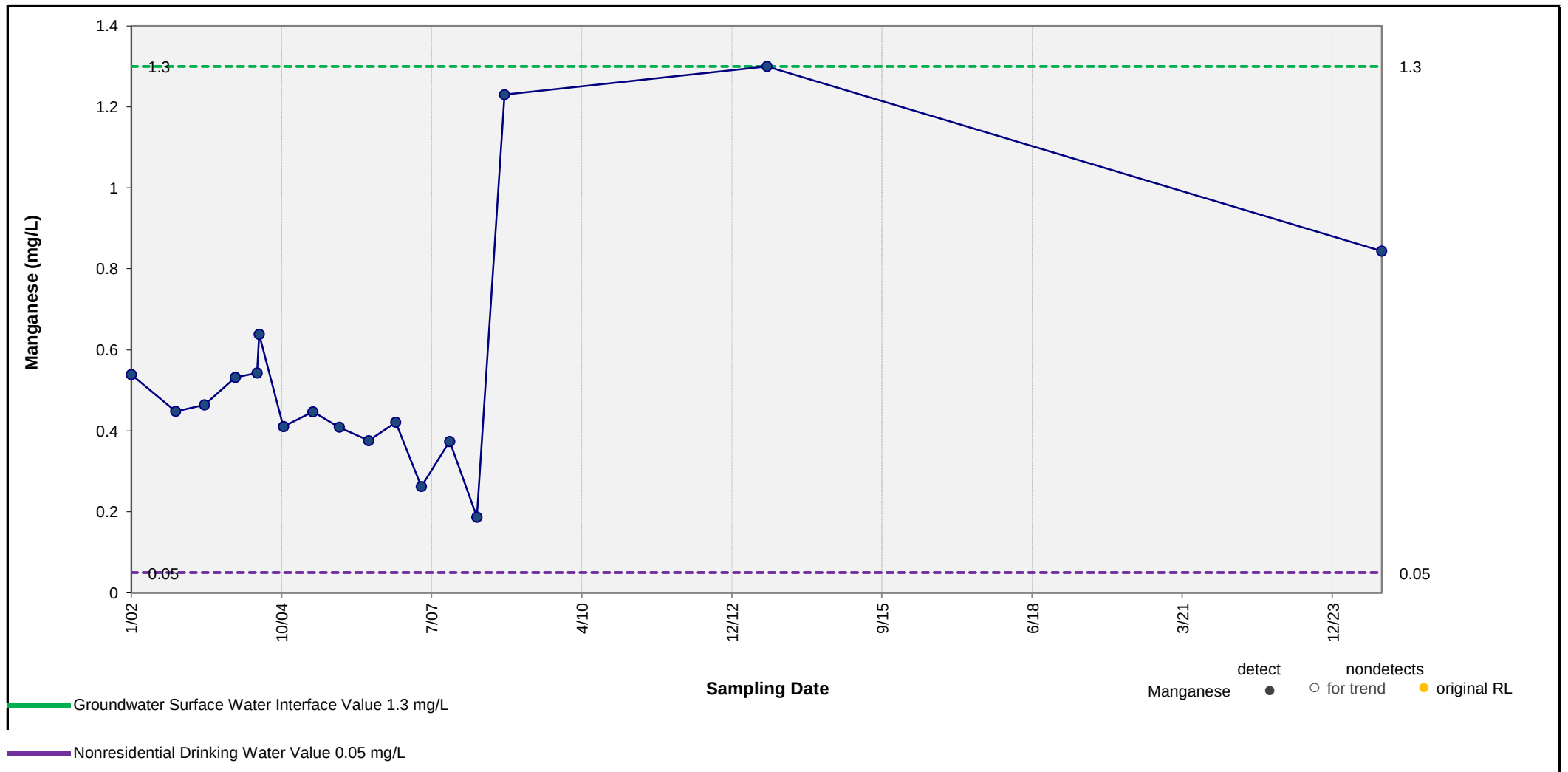
INCREASING TREND

p value = 0.022 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).



Concentration vs. Time Plot – Manganese in Well MWW01-SEN03
RACER PNC

Figure I-7



Results of Mann-Kendall Test for Trend:

No Significant Trend

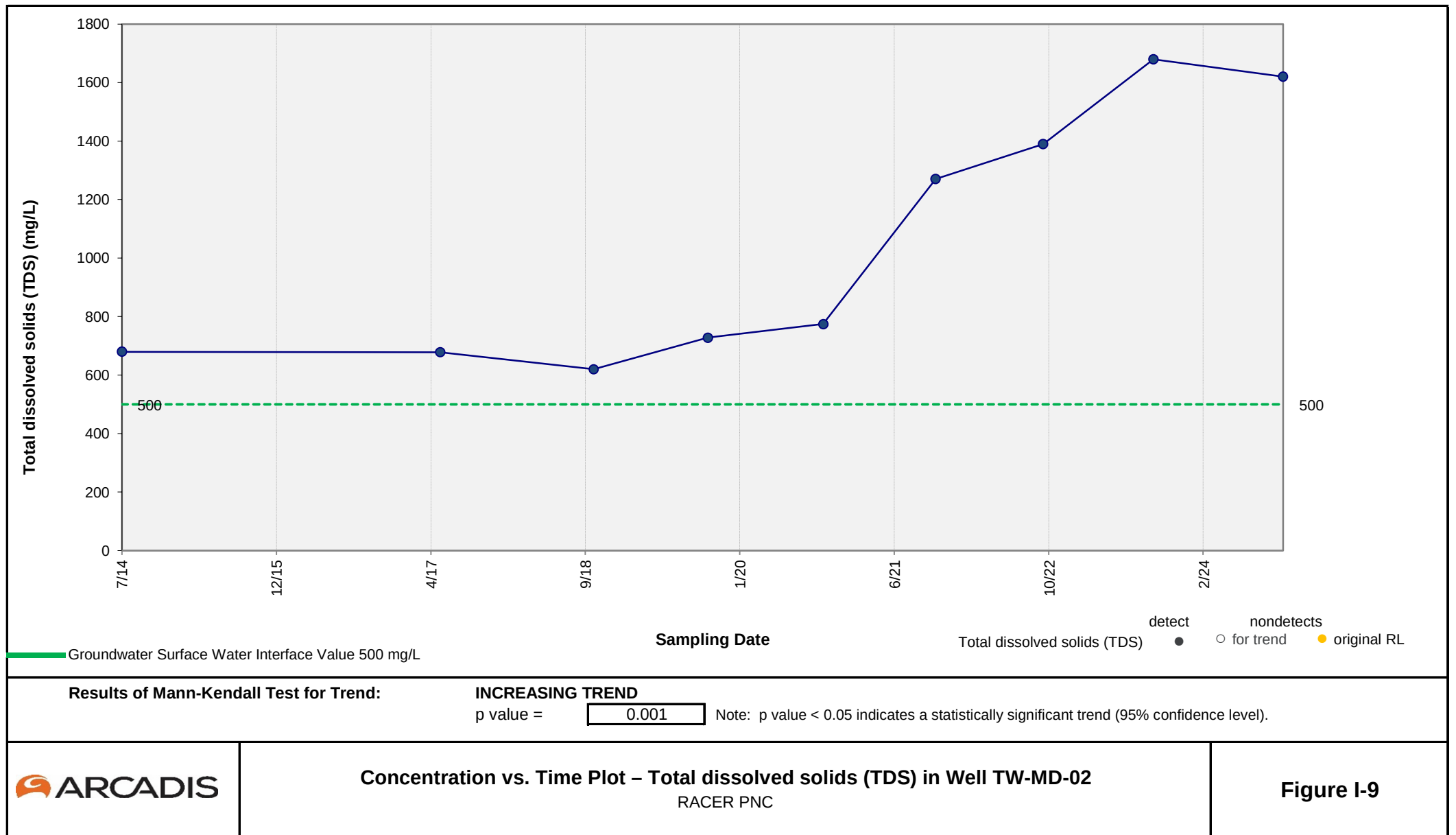
p value = 0.268

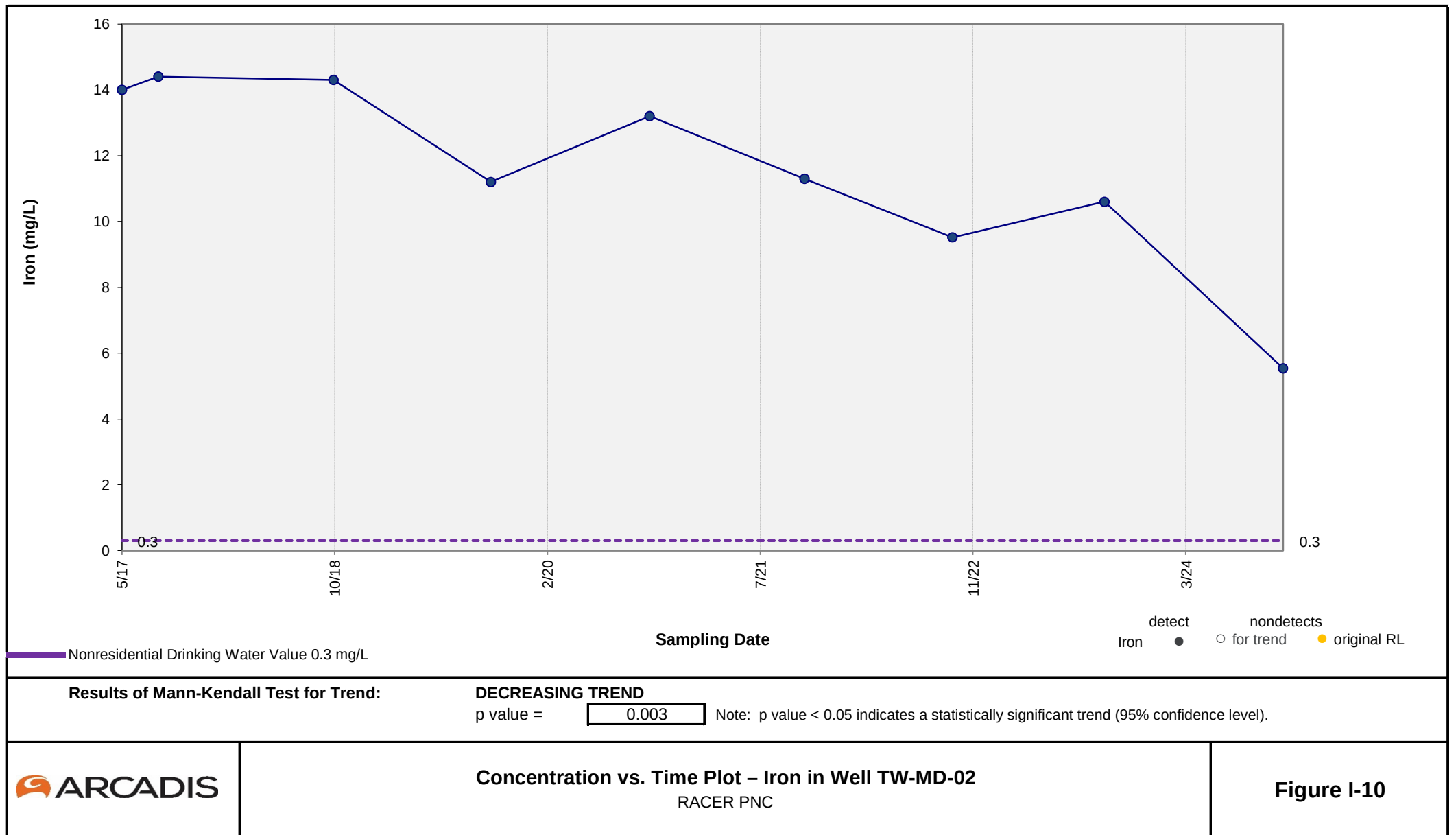
Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

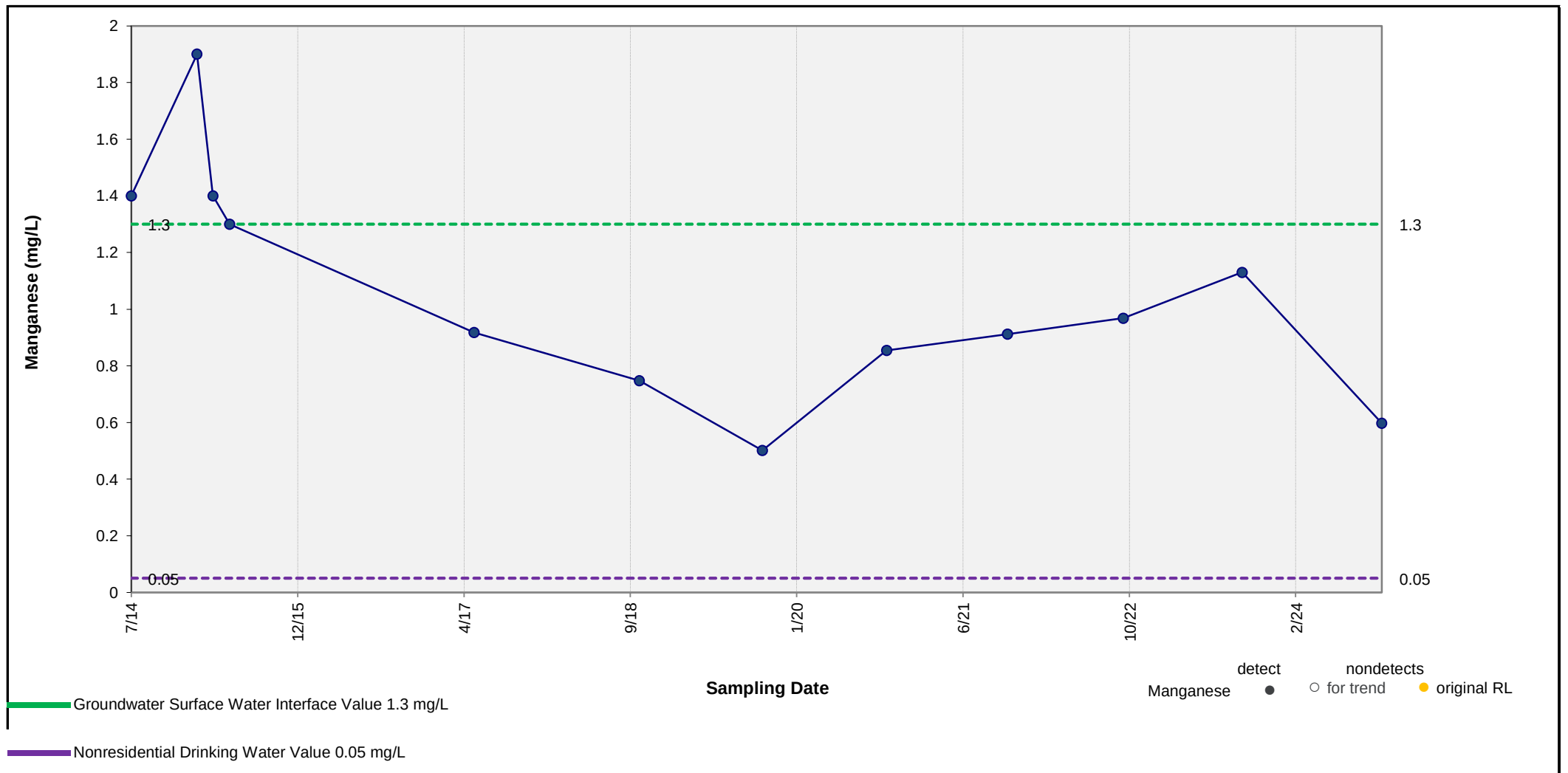


Concentration vs. Time Plot – Manganese in Well MWW1-02
RACER PNC

Figure I-8







Results of Mann-Kendall Test for Trend:

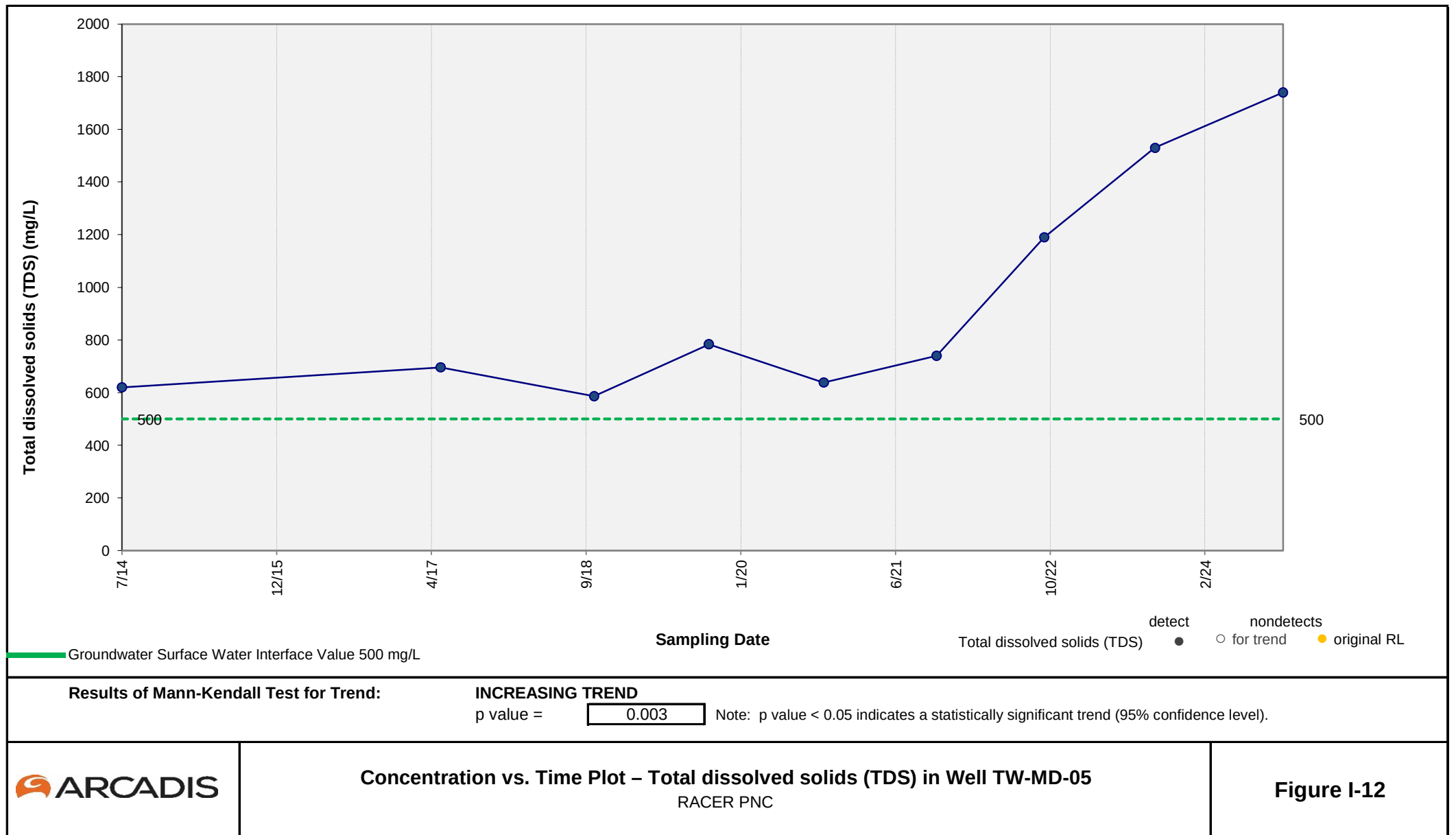
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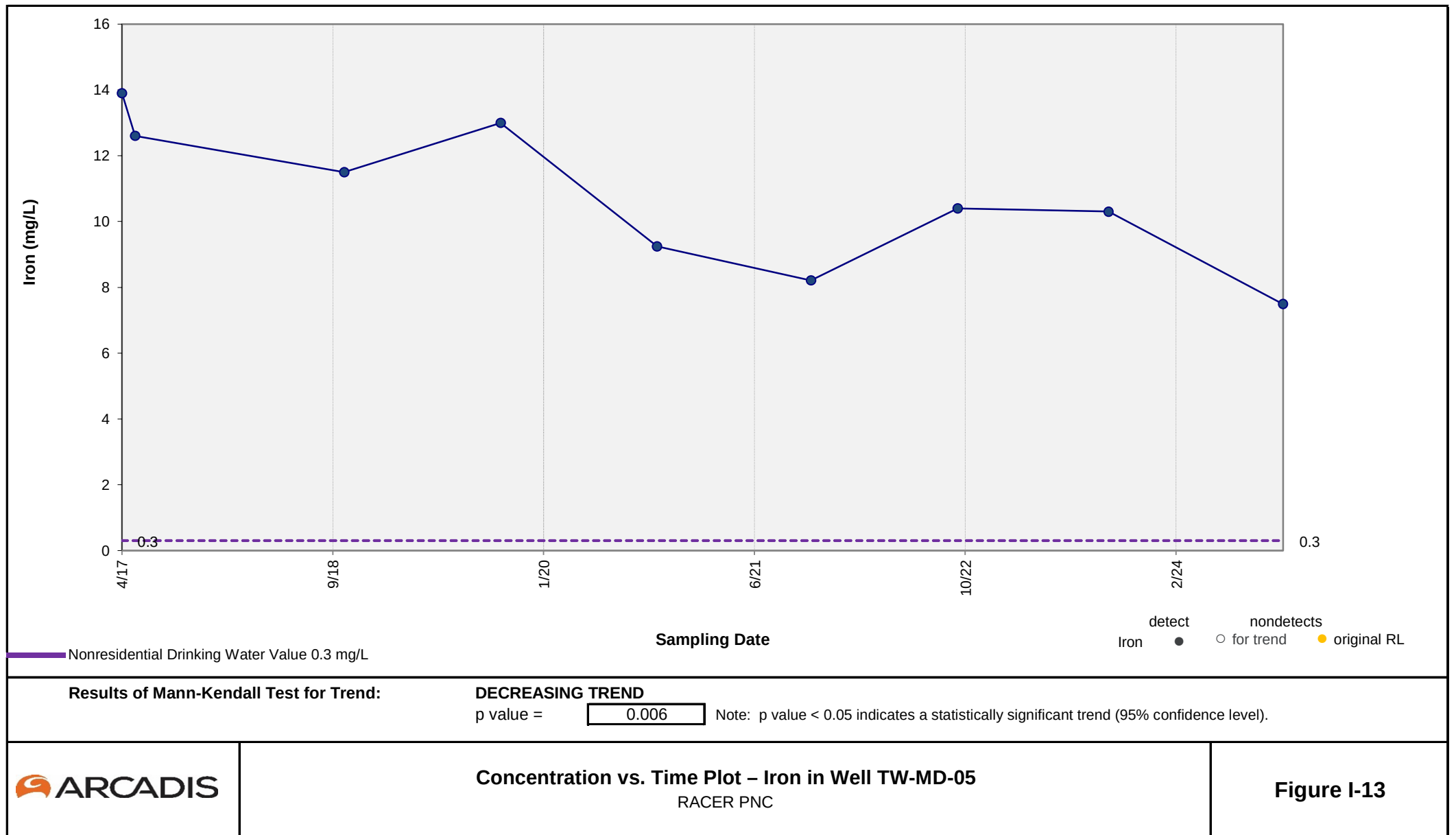
p value = 0.027 Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).

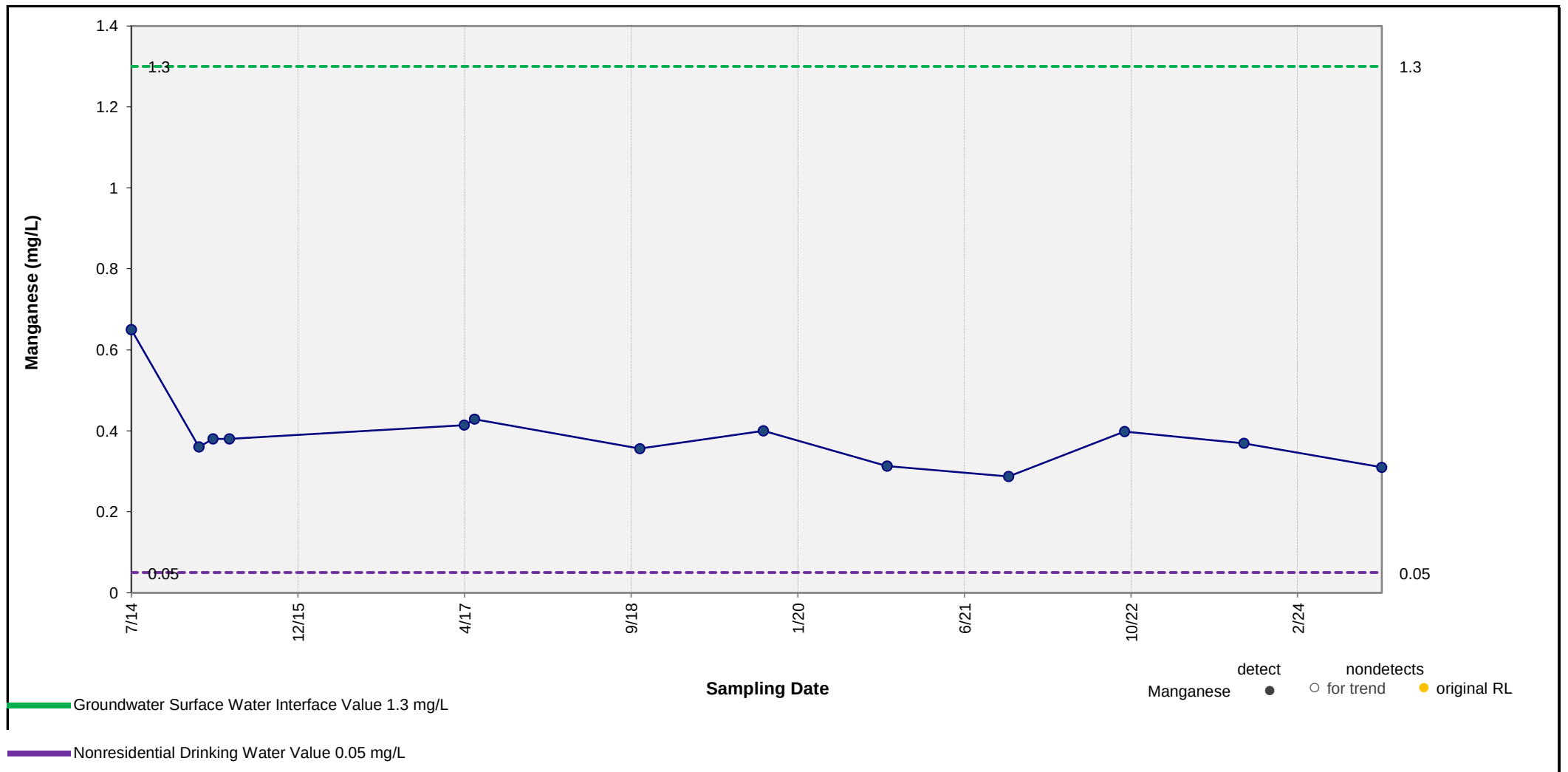


Concentration vs. Time Plot – Manganese in Well TW-MD-02
RACER PNC

Figure I-11







Results of Mann-Kendall Test for Trend:

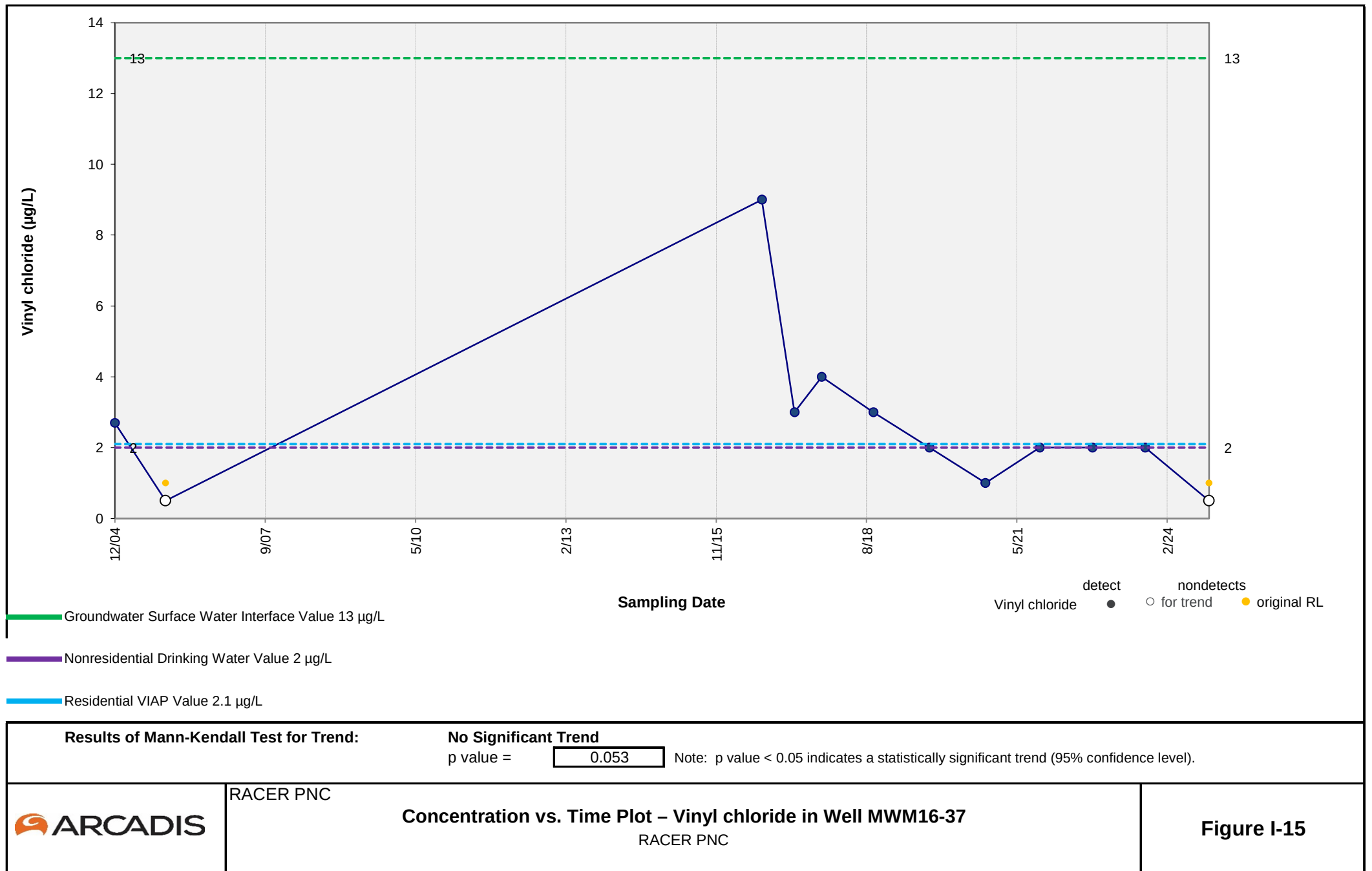
DECREASING TREND

p value = **0.044** Note: p value < 0.05 indicates a statistically significant trend (95% confidence level).



Concentration vs. Time Plot – Manganese in Well TW-MD-05
RACER PNC

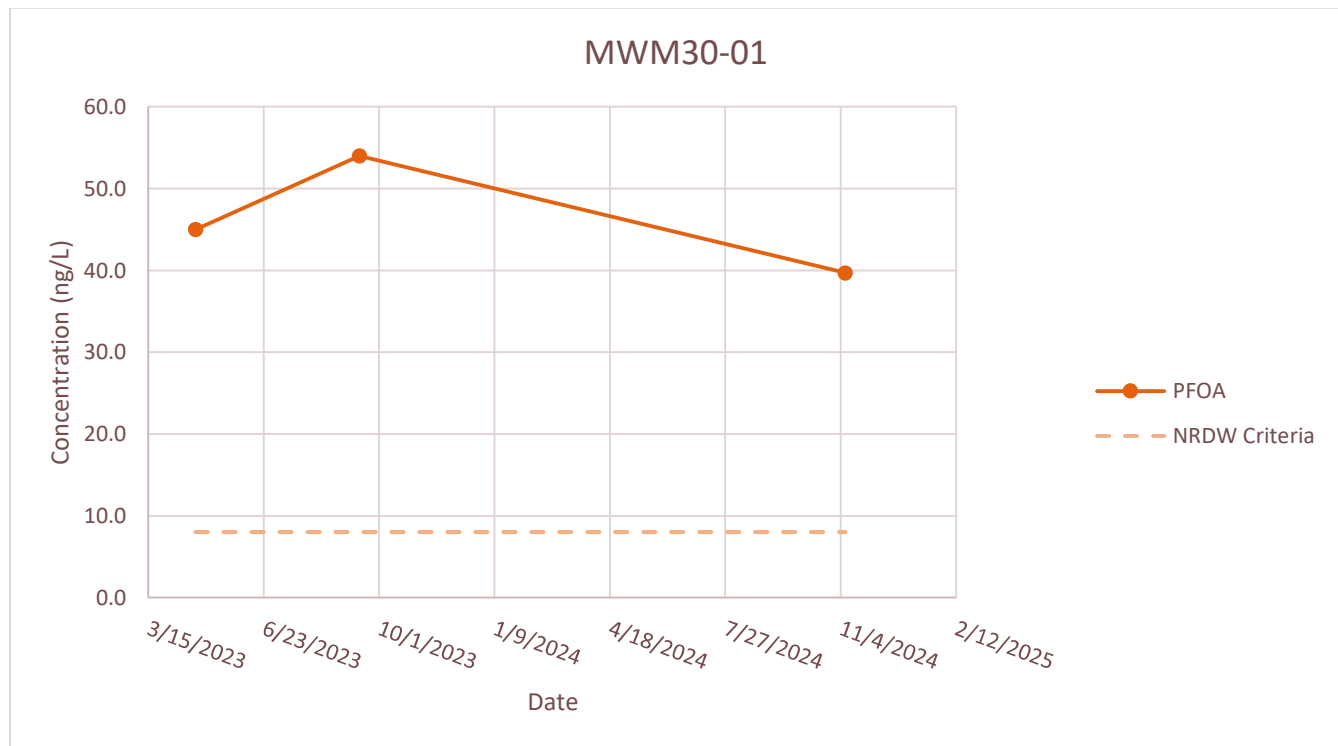
Figure I-14



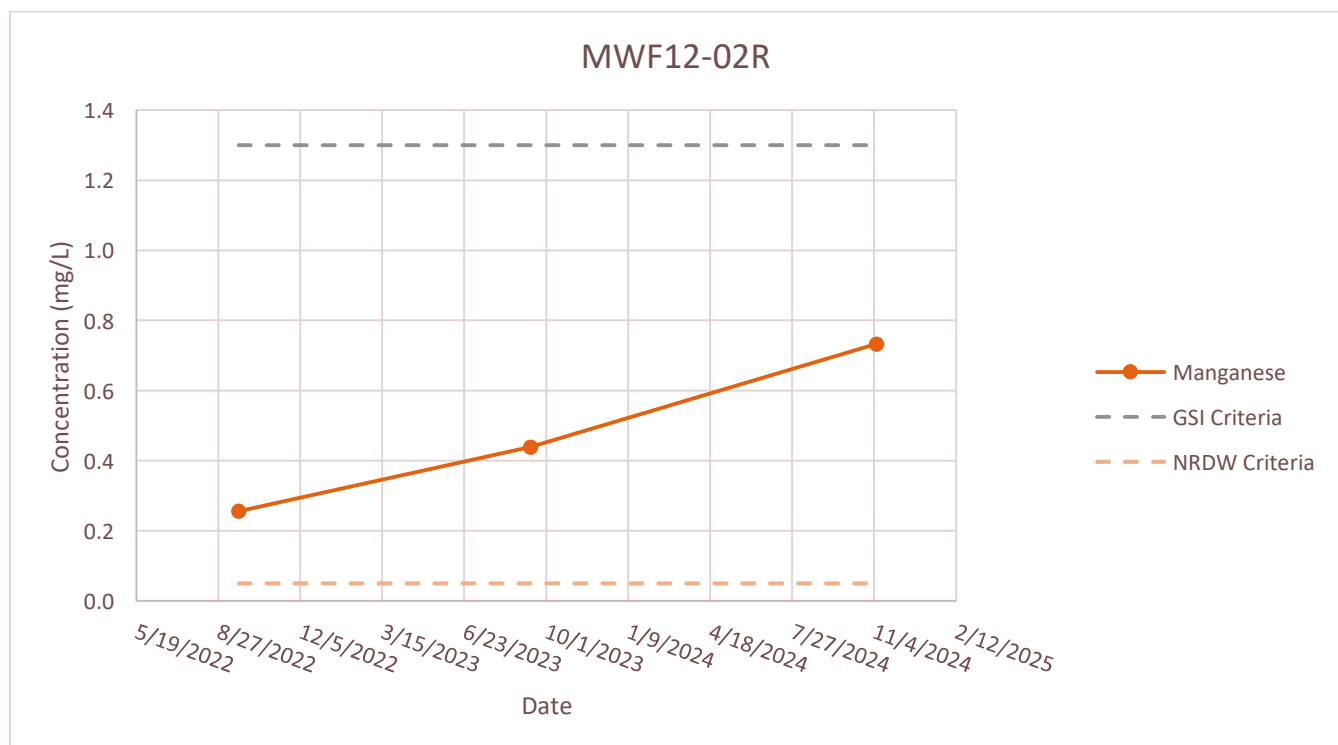
Appendix I

Groundwater Trend Graphs

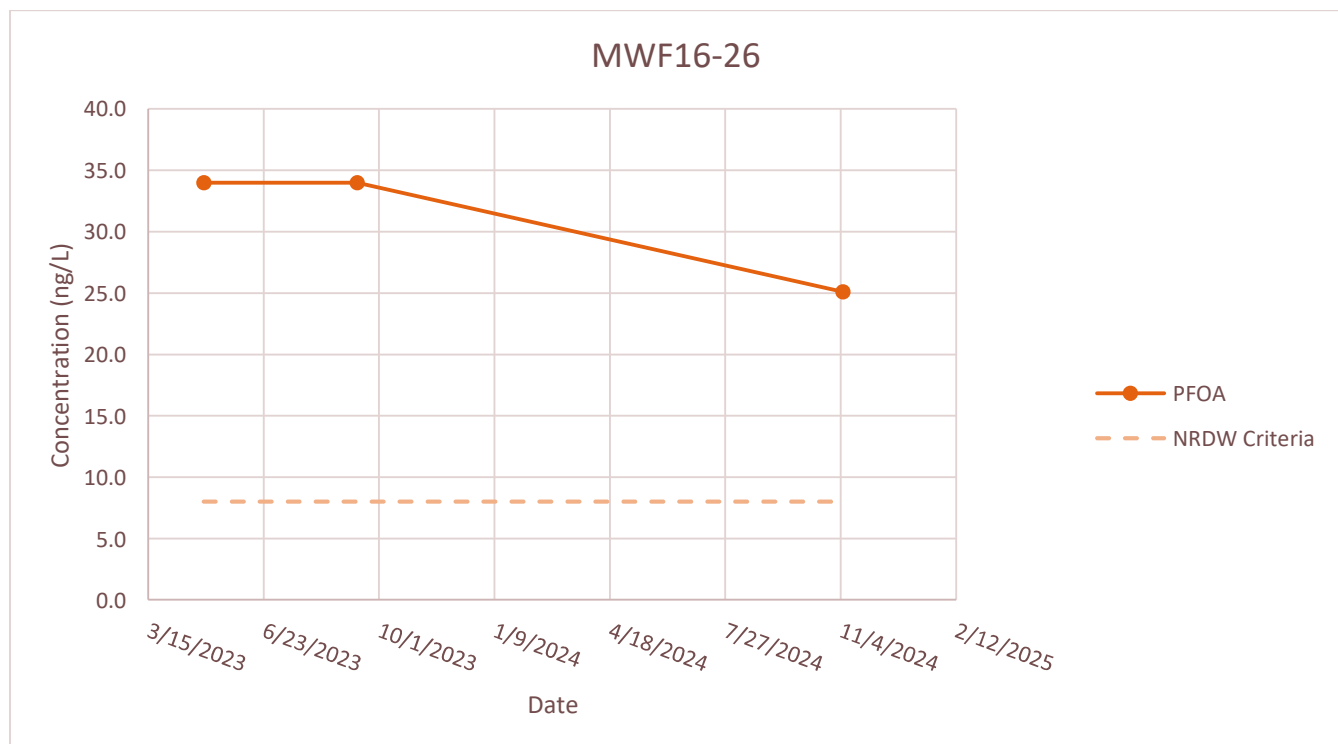
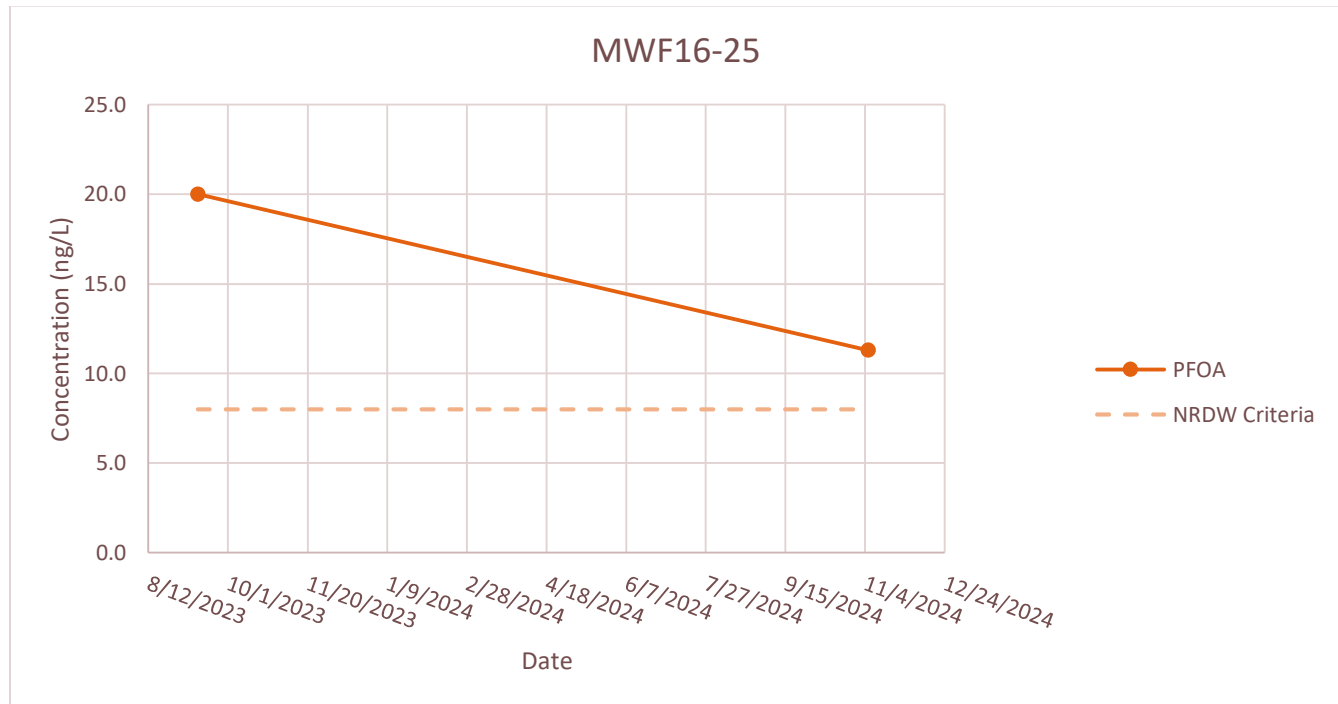
Northern Metal Fabrication Division



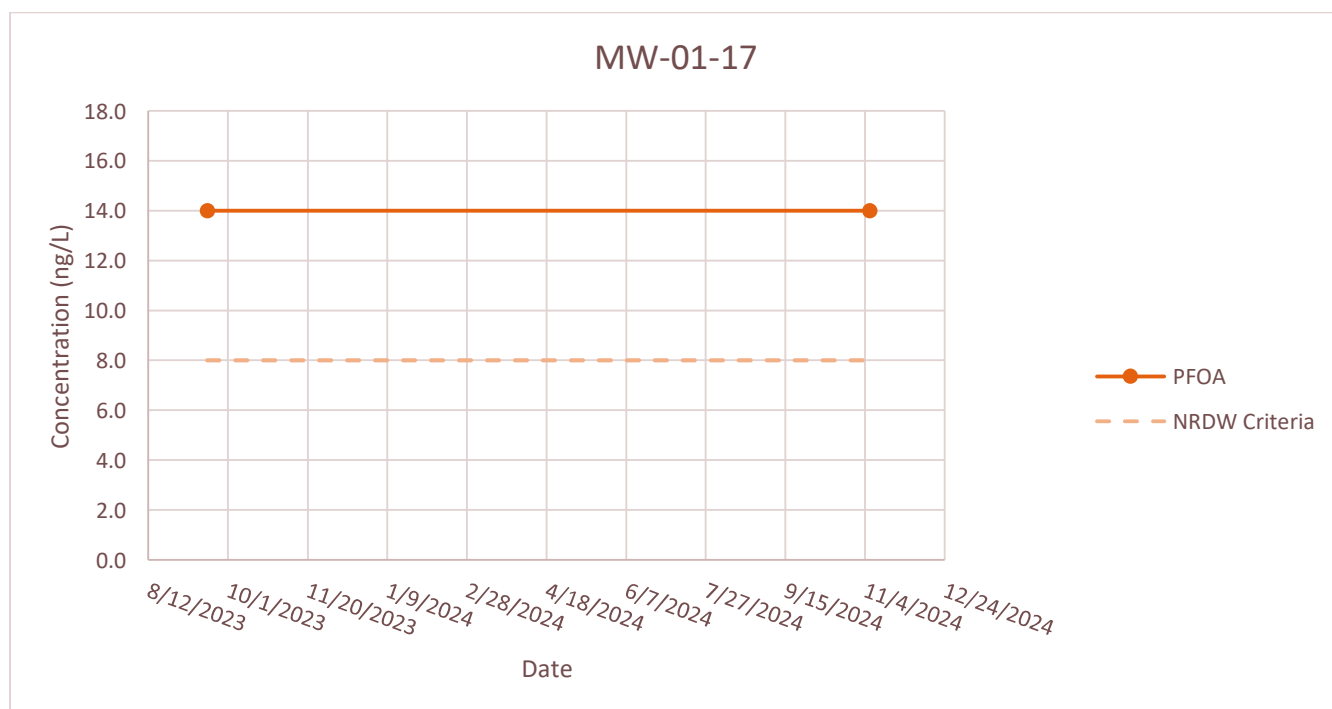
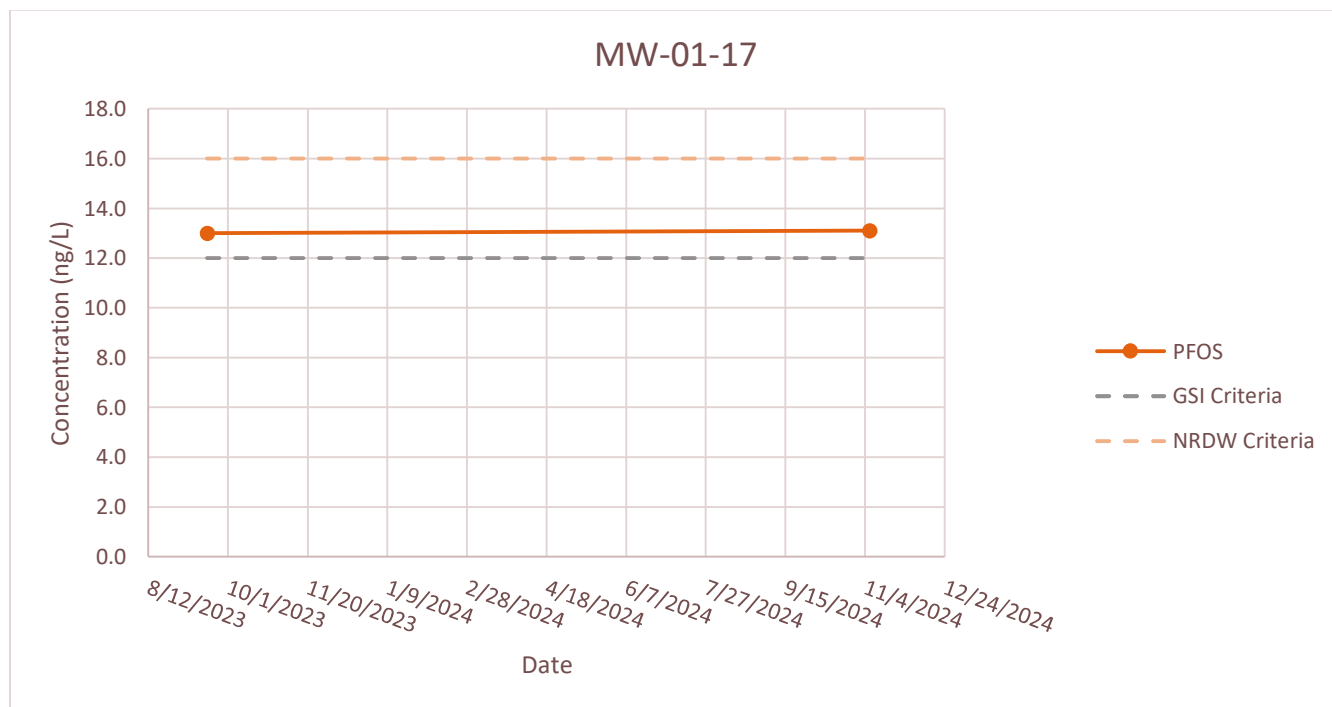
Fiero Properties



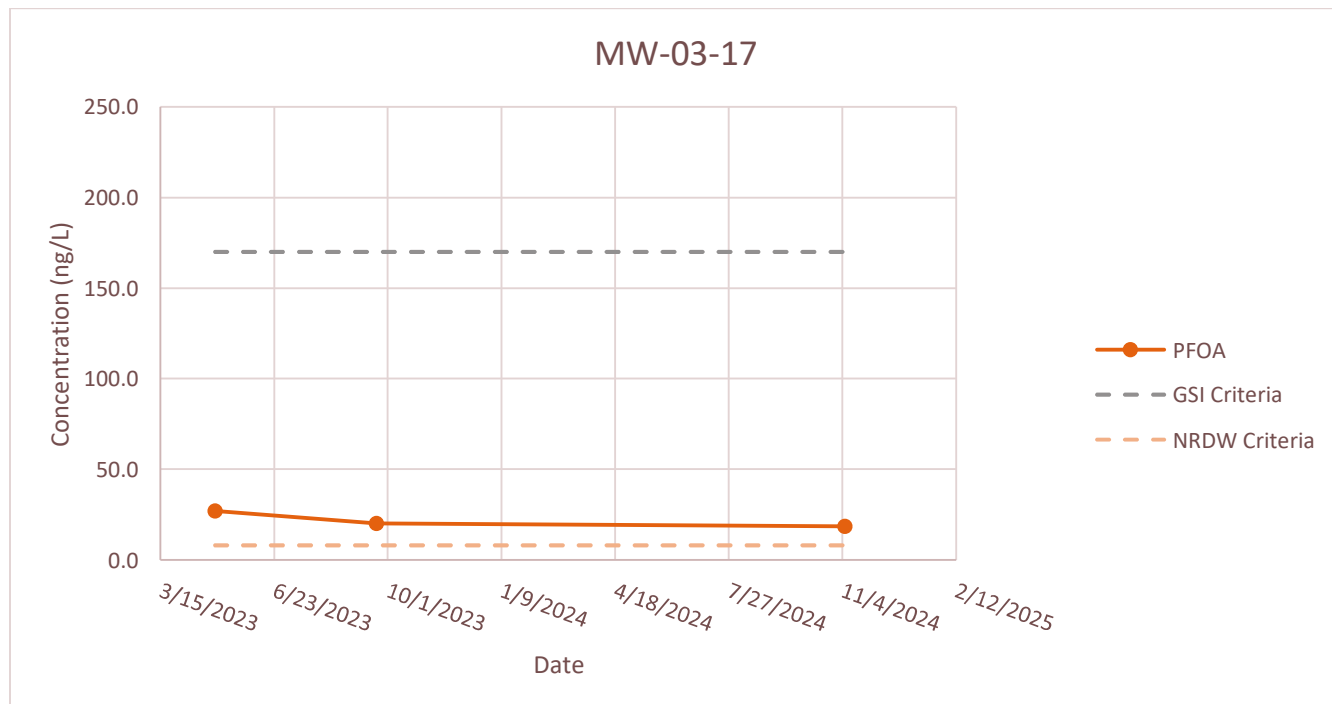
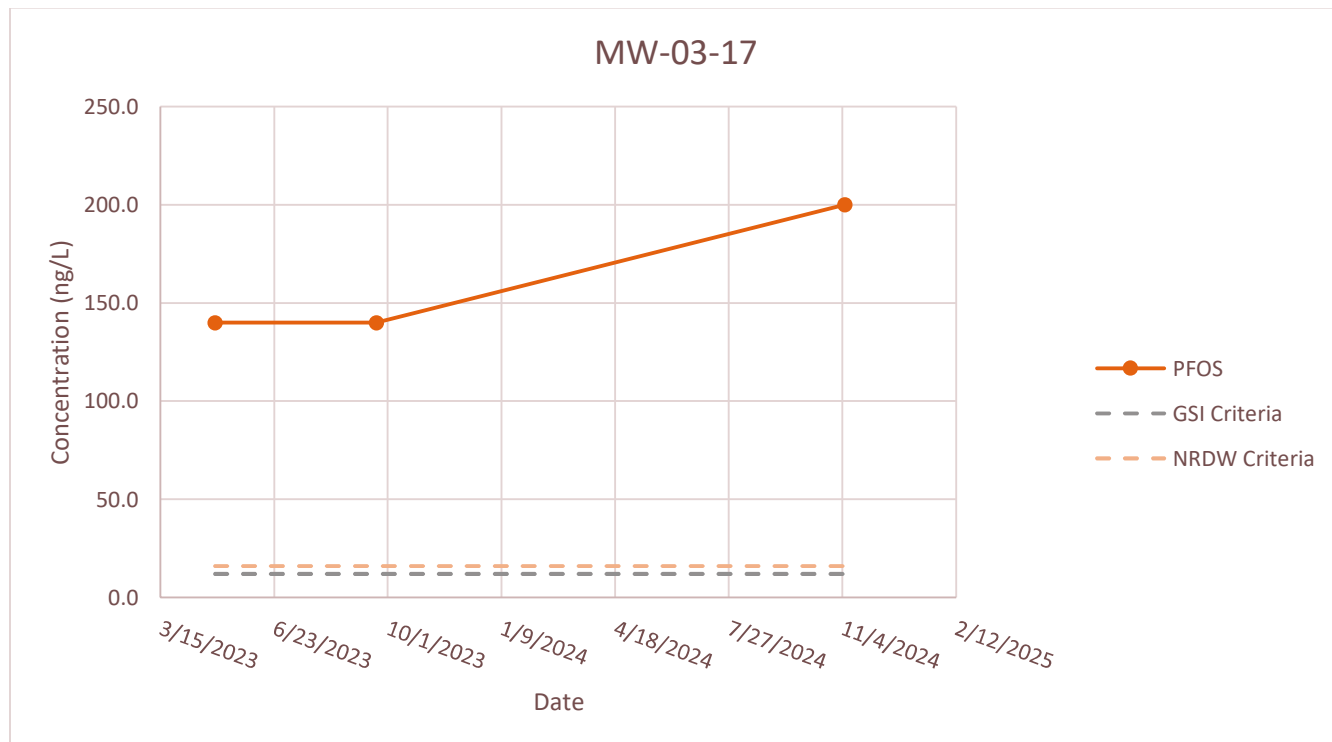
Groundwater Trend Graphs



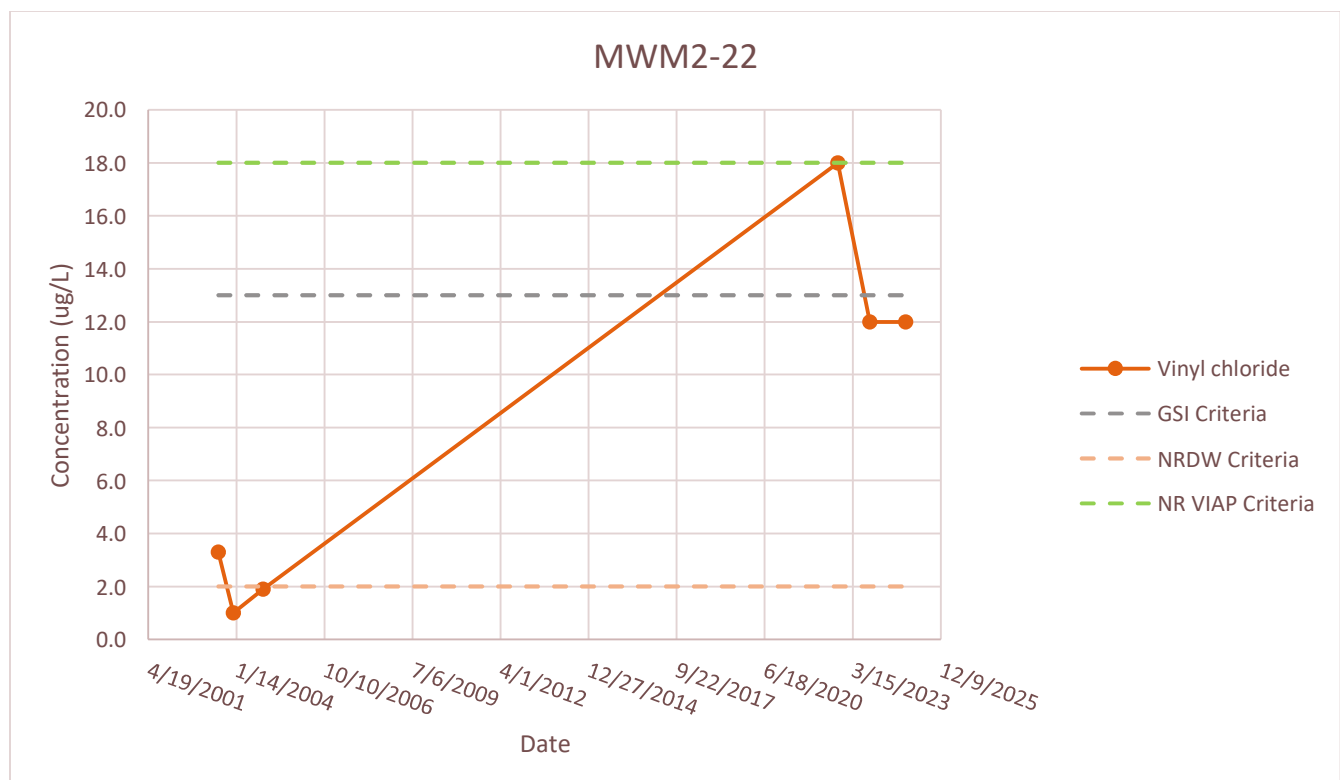
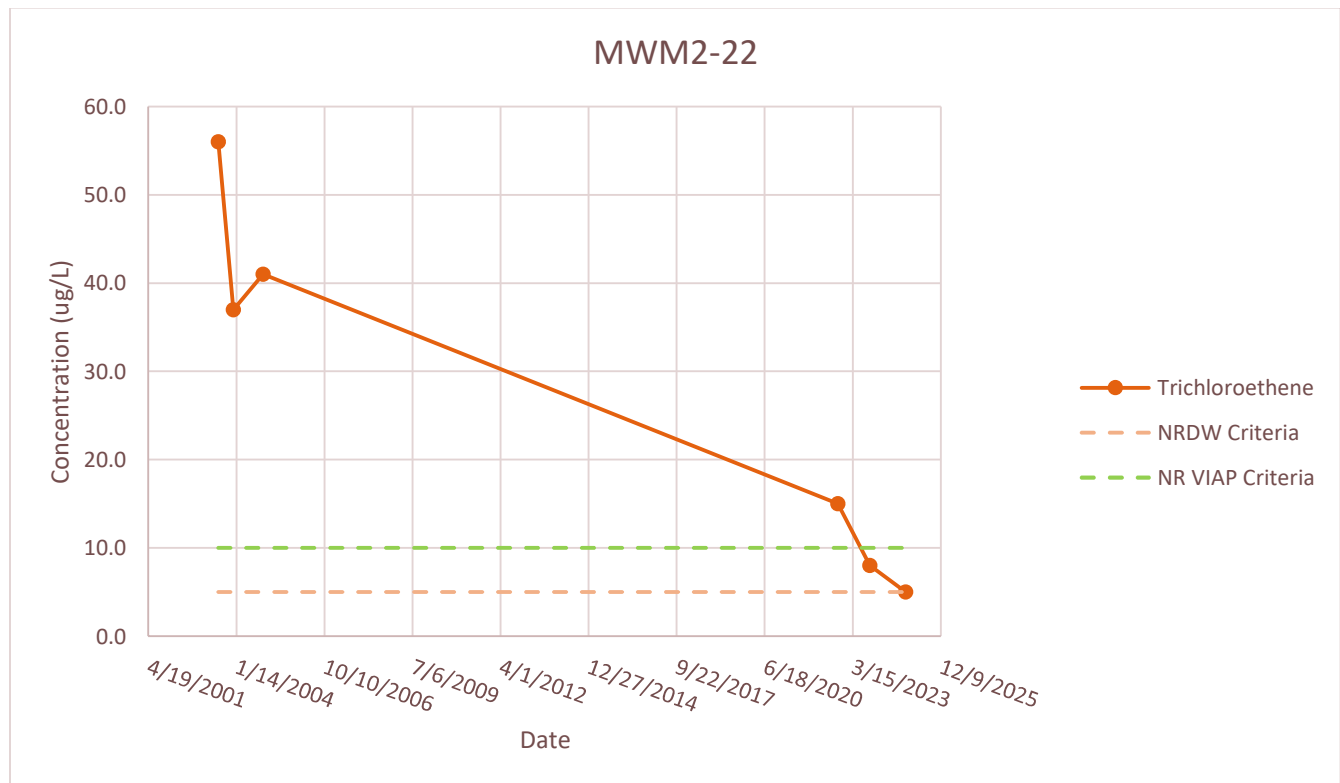
Groundwater Trend Graphs

Southern Metal Fabrication Division

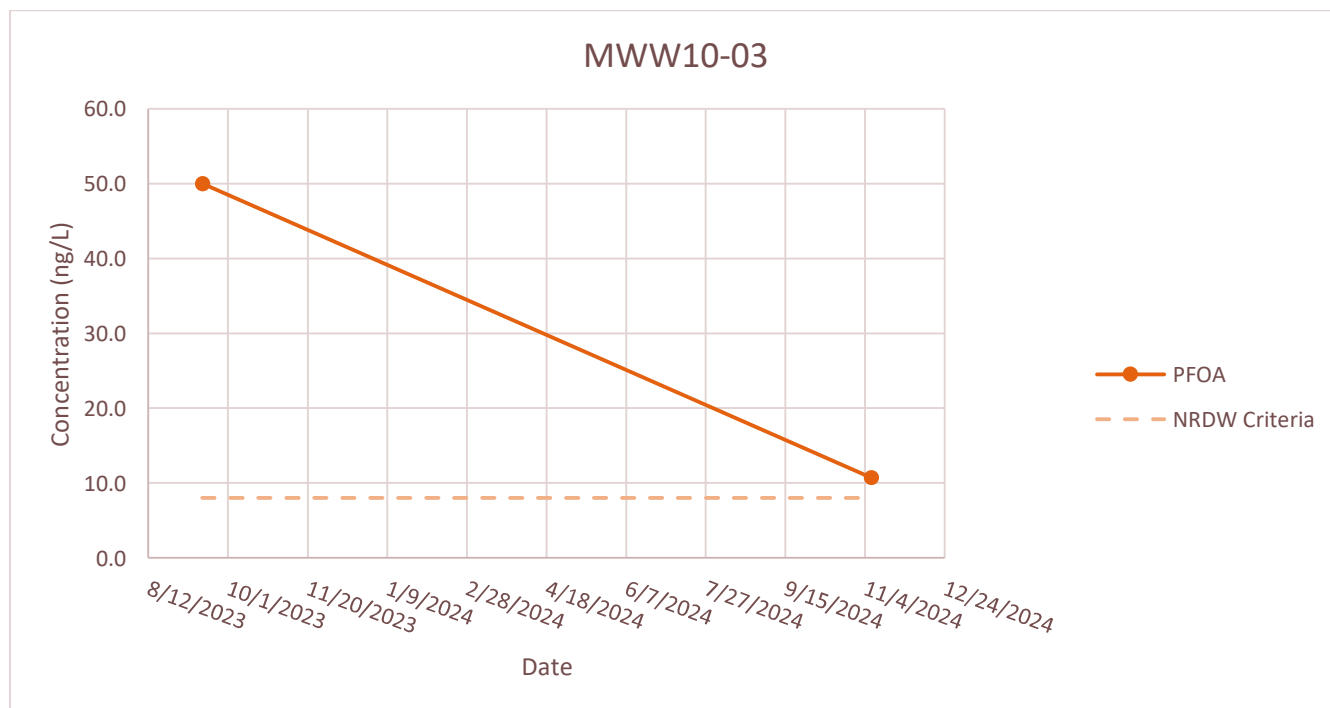
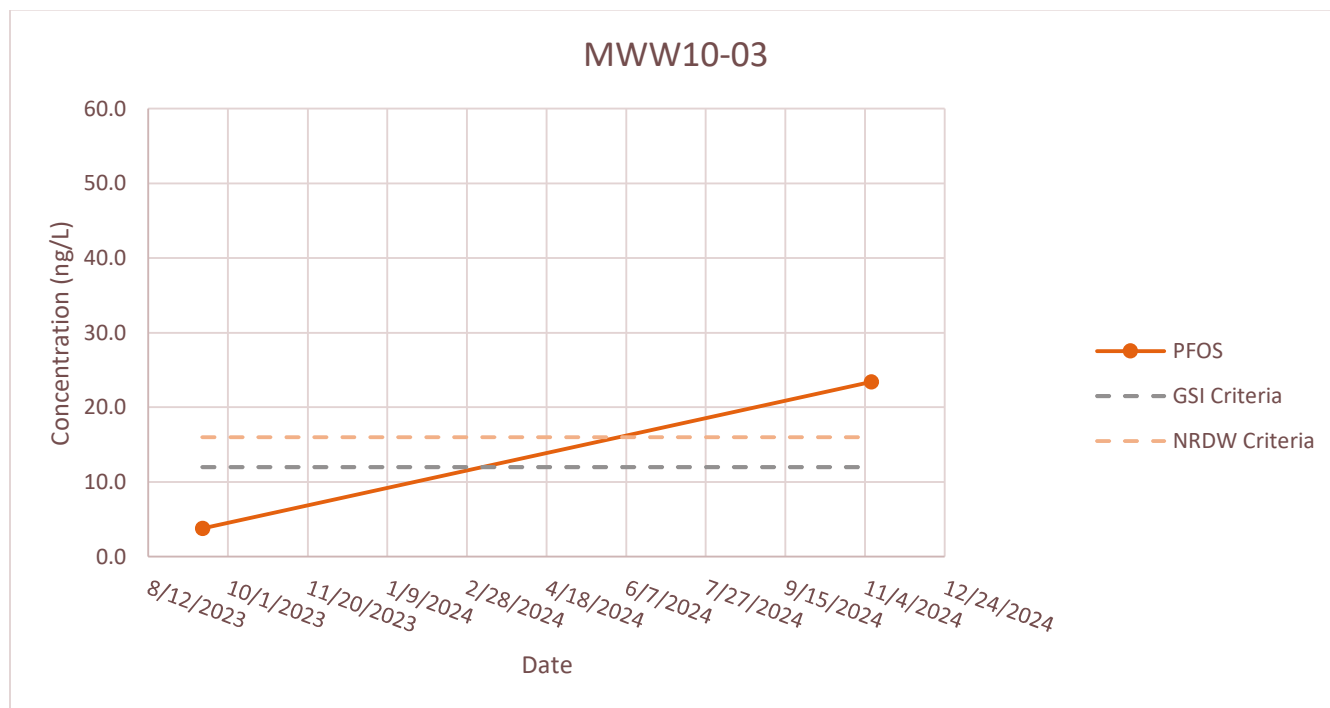
Groundwater Trend Graphs



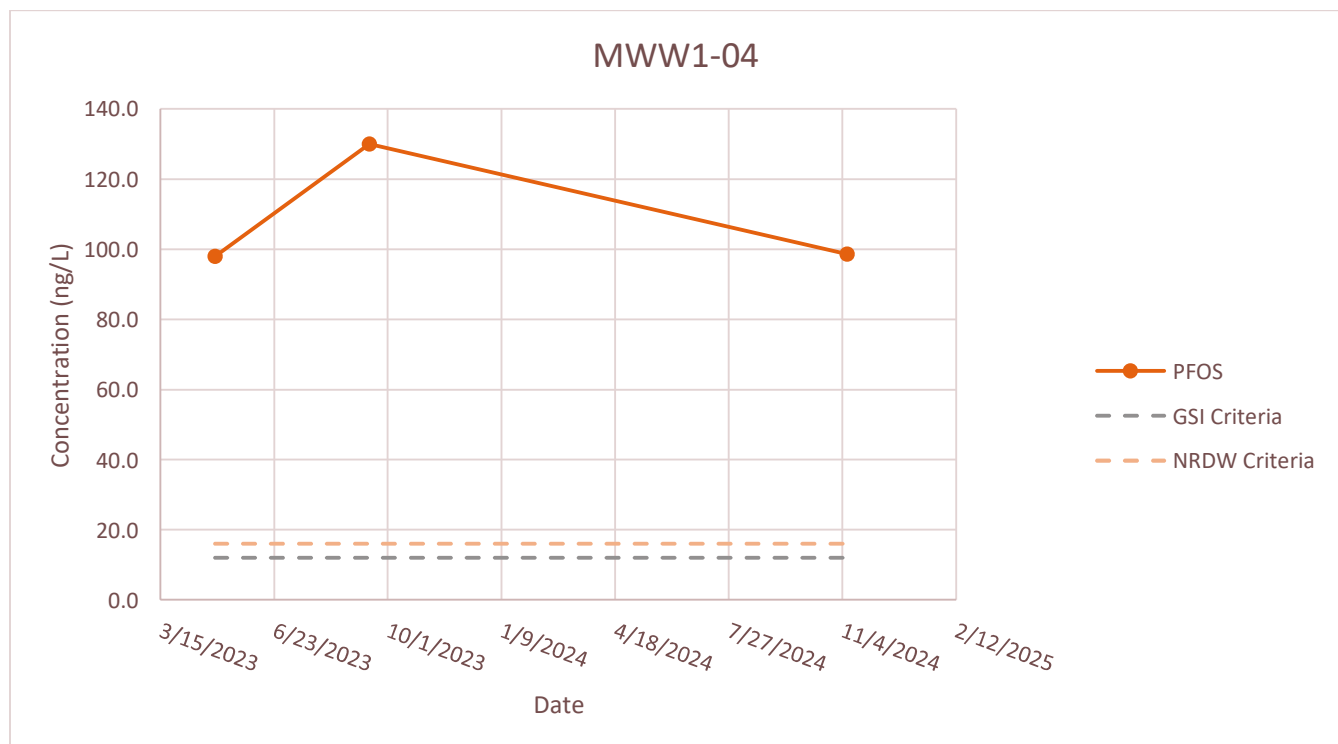
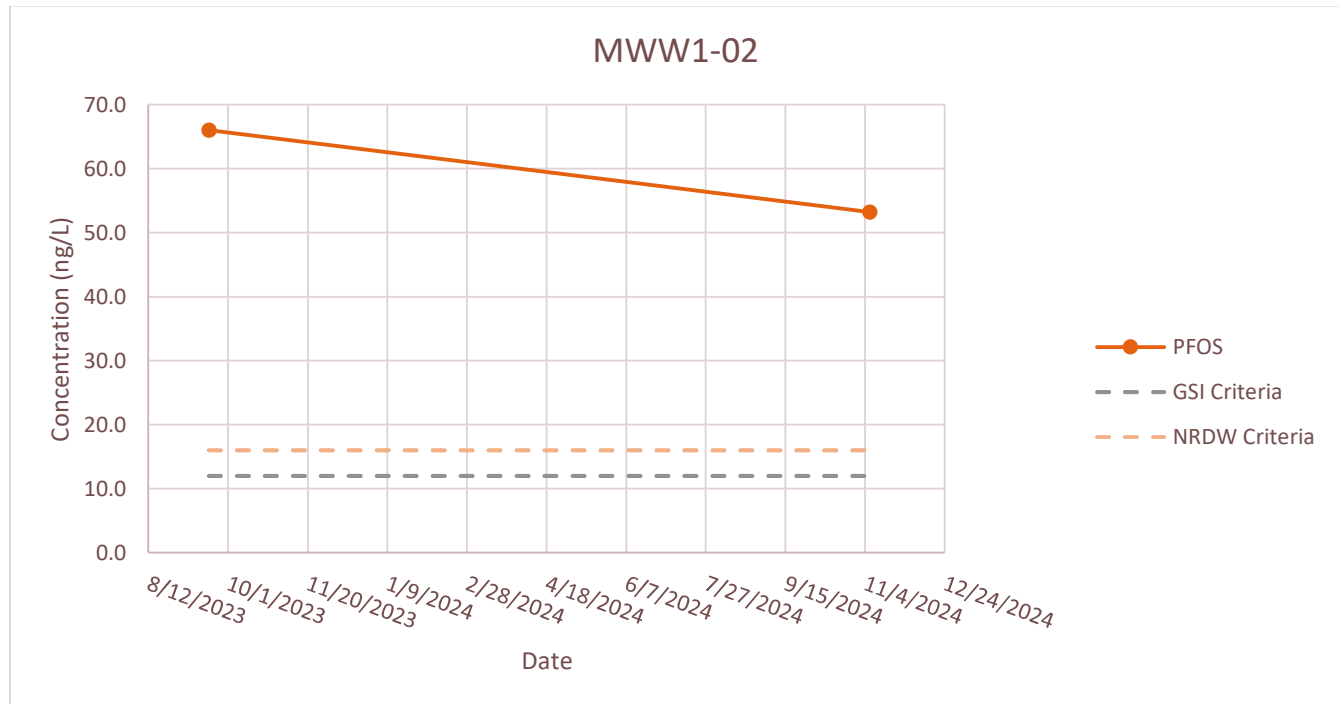
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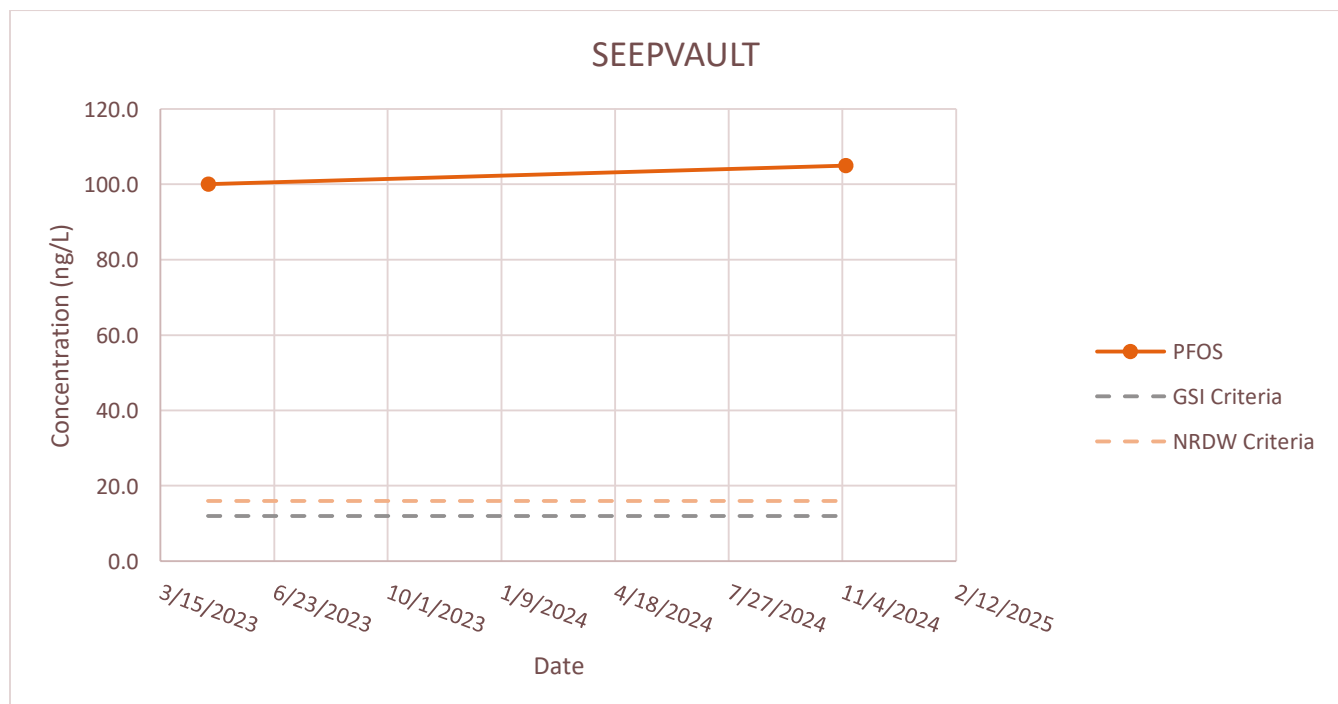
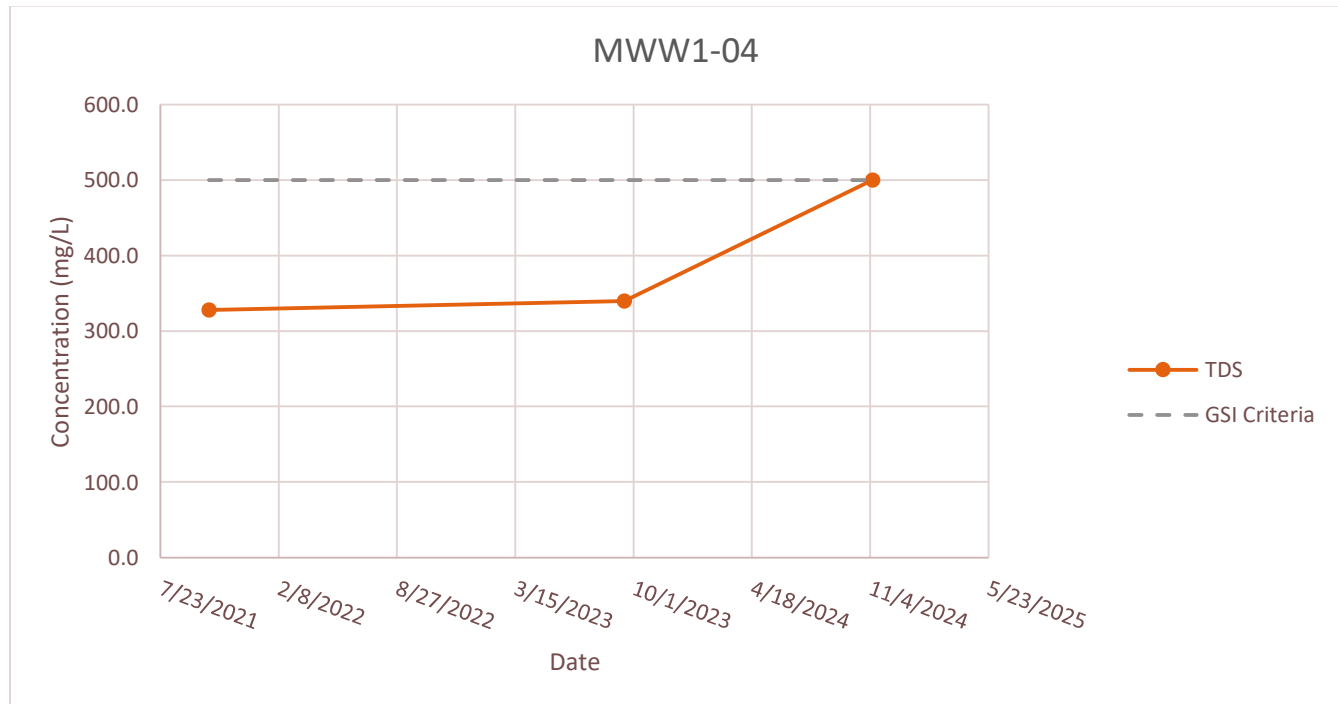
Groundwater Trend Graphs



Groundwater Trend Graphs

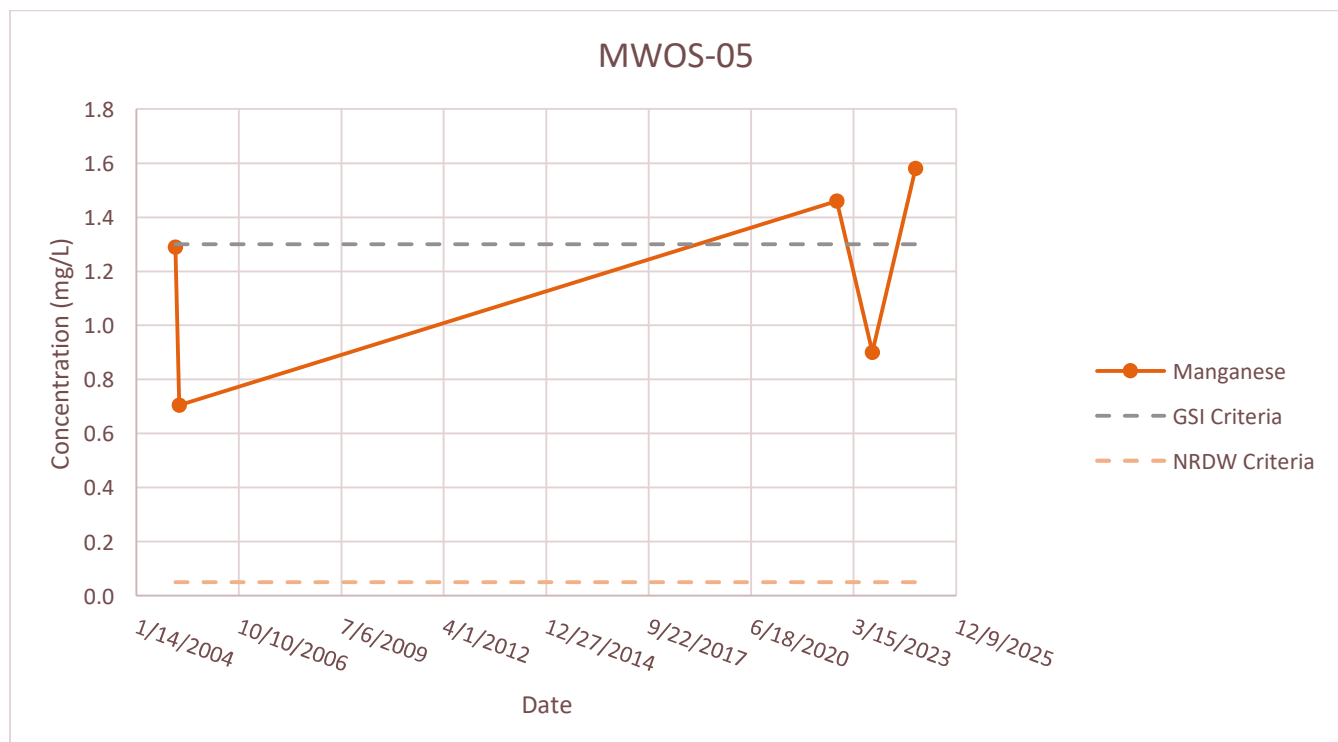
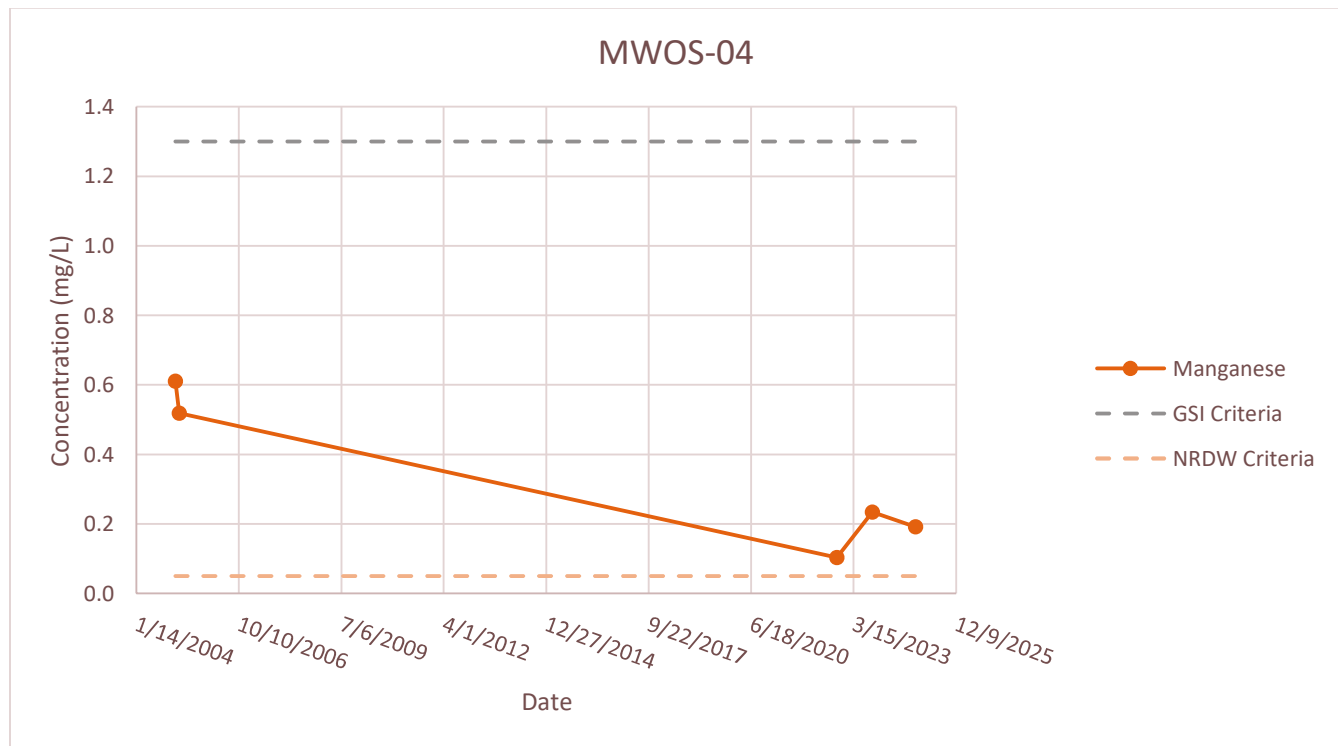


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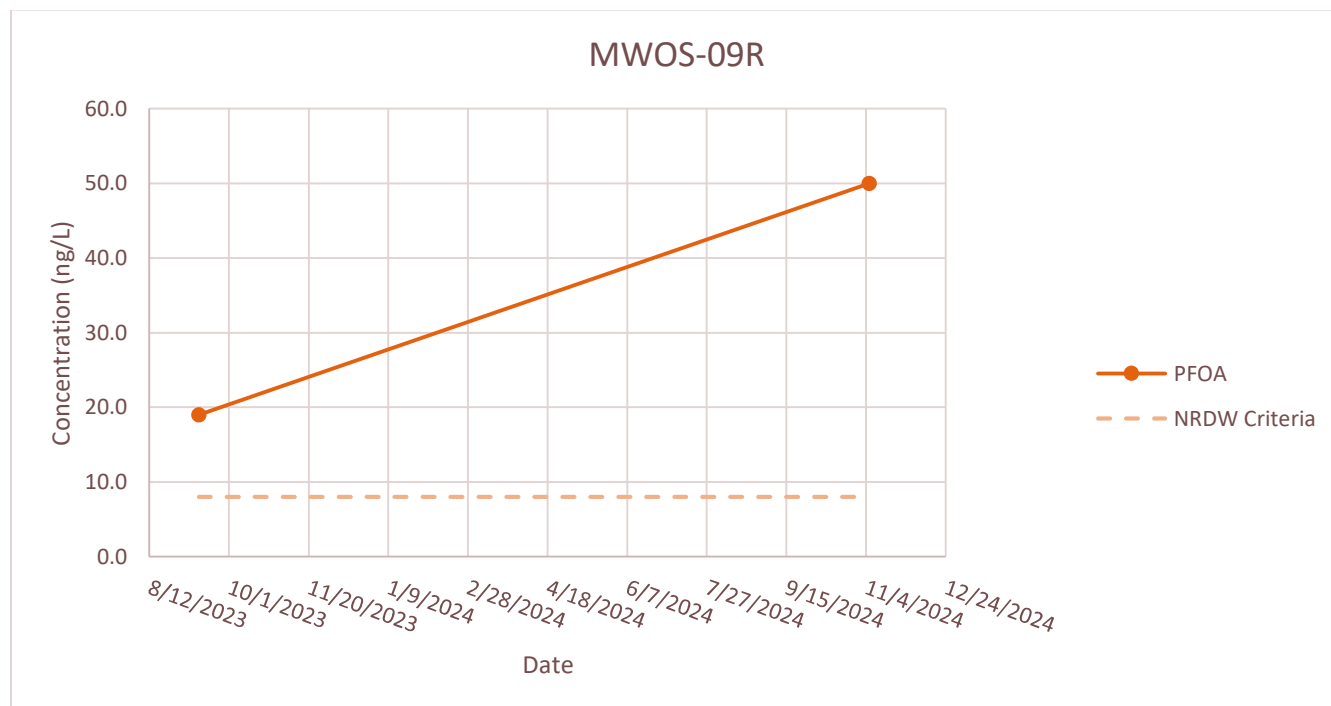


Groundwater Trend Graphs

Offsite



Groundwater Trend Graphs

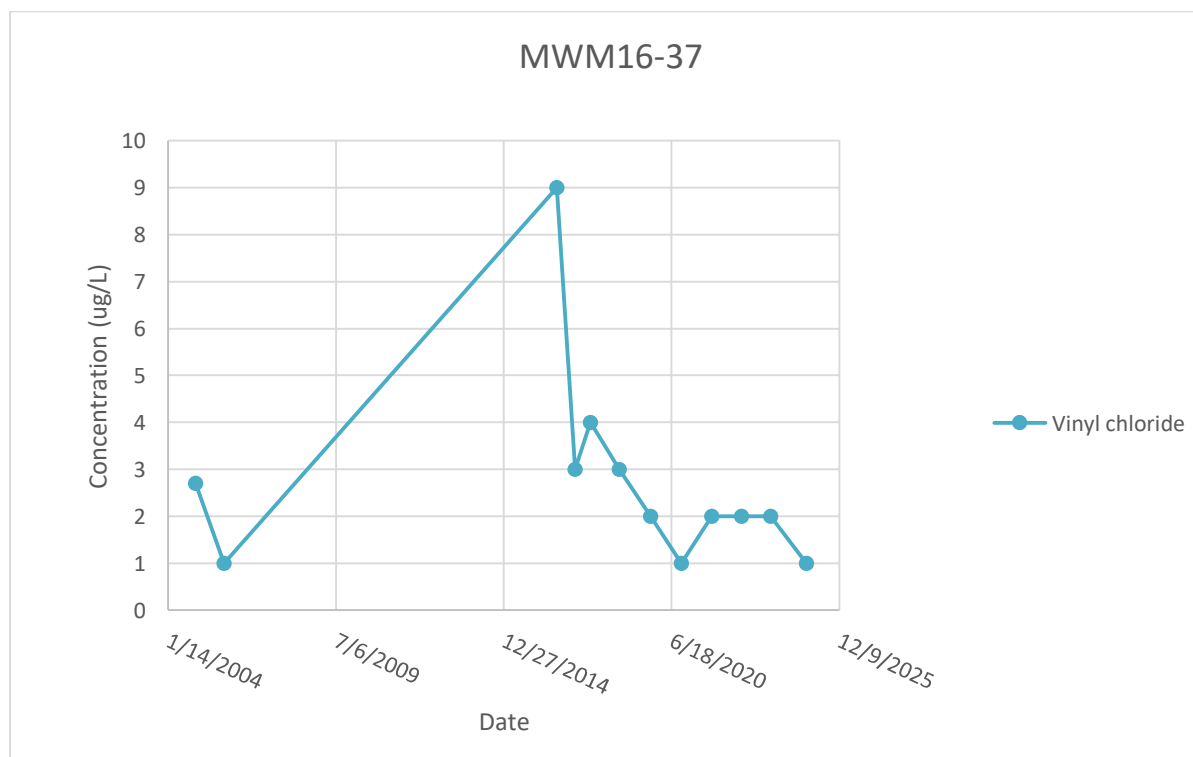
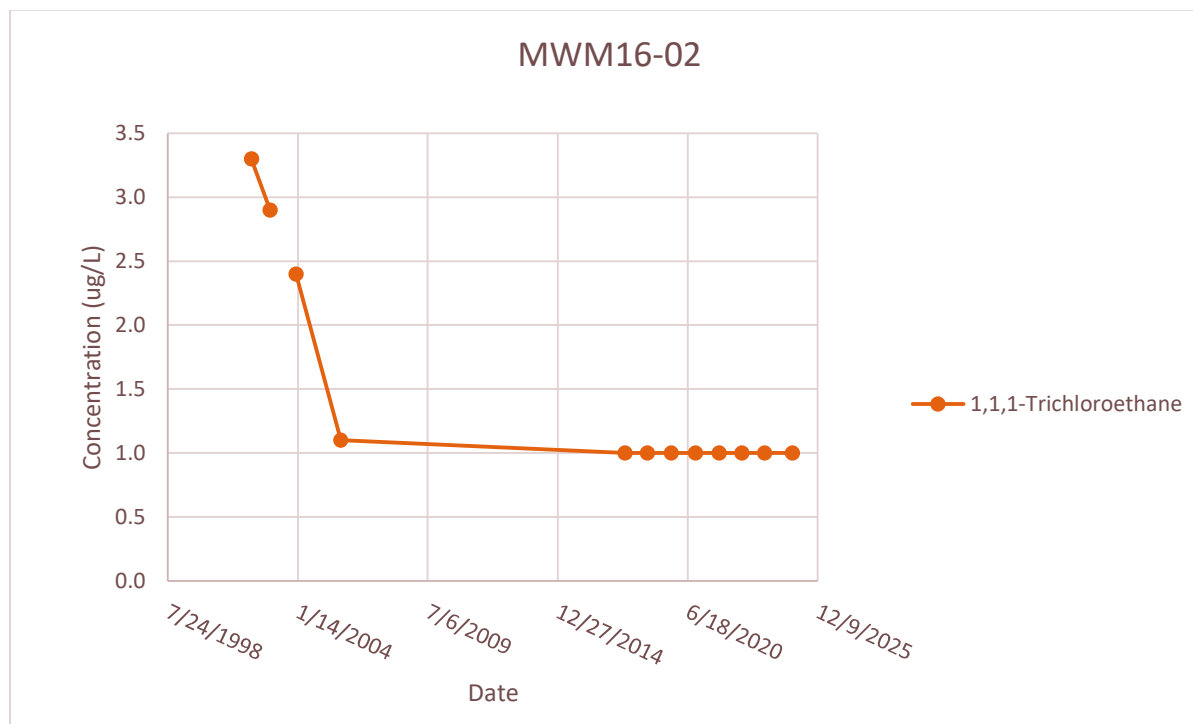


Appendix J

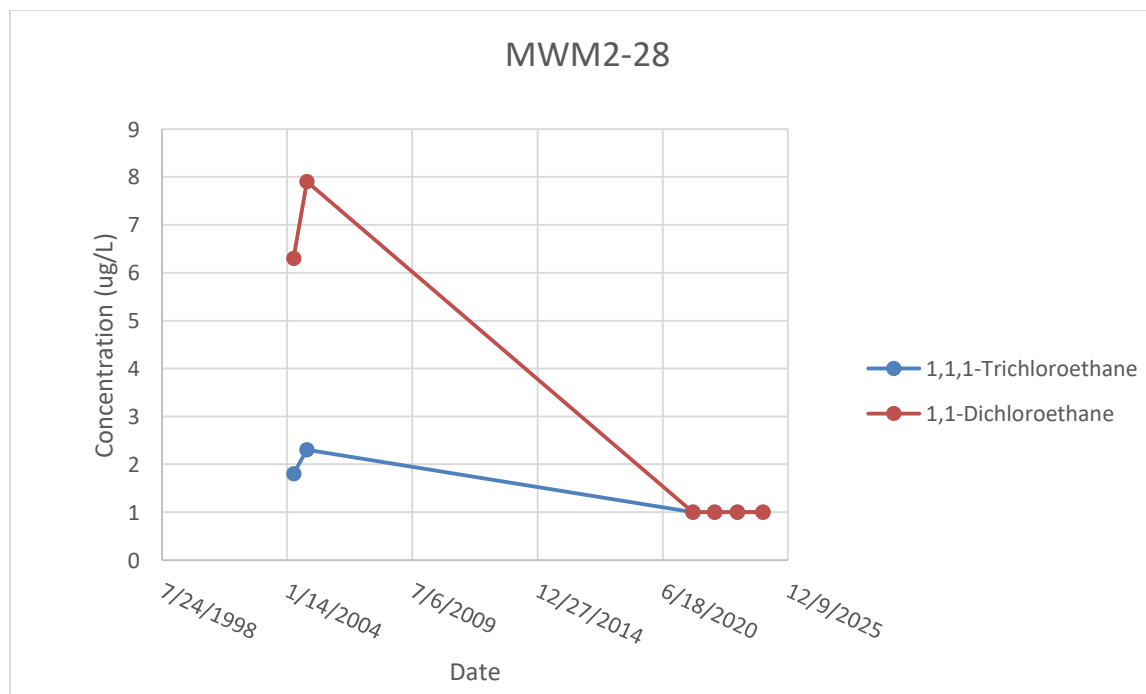
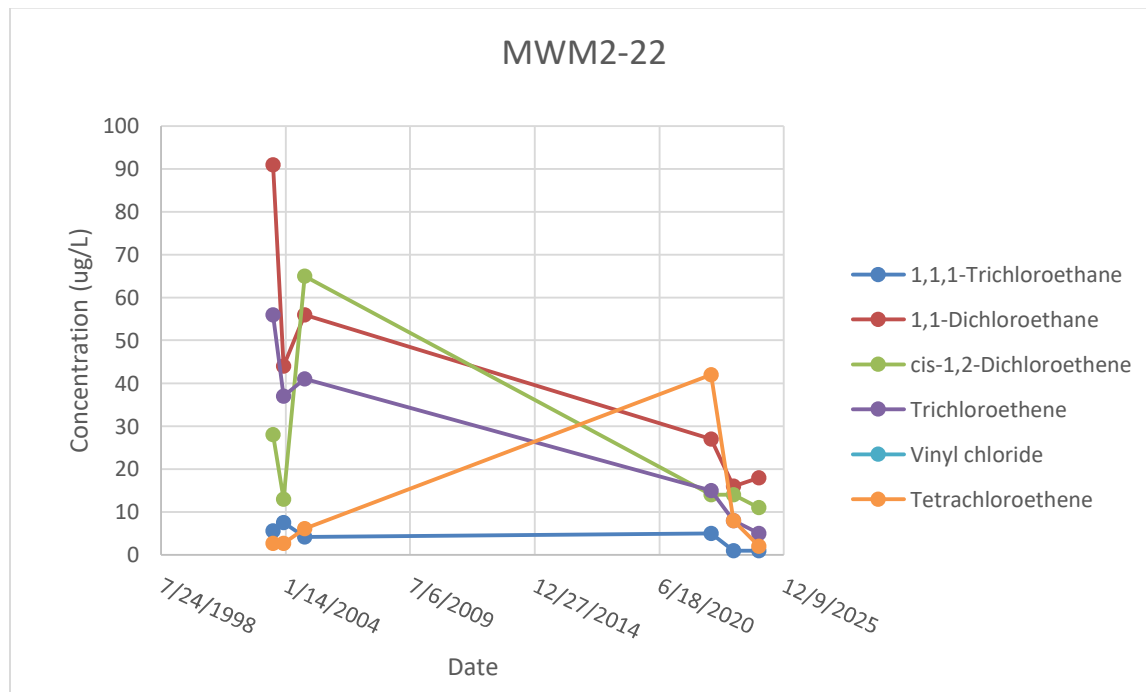
USEPA Additional Sampling Requested Trend Graphs

USEPA Additional Sampling Requested Trend Graphs

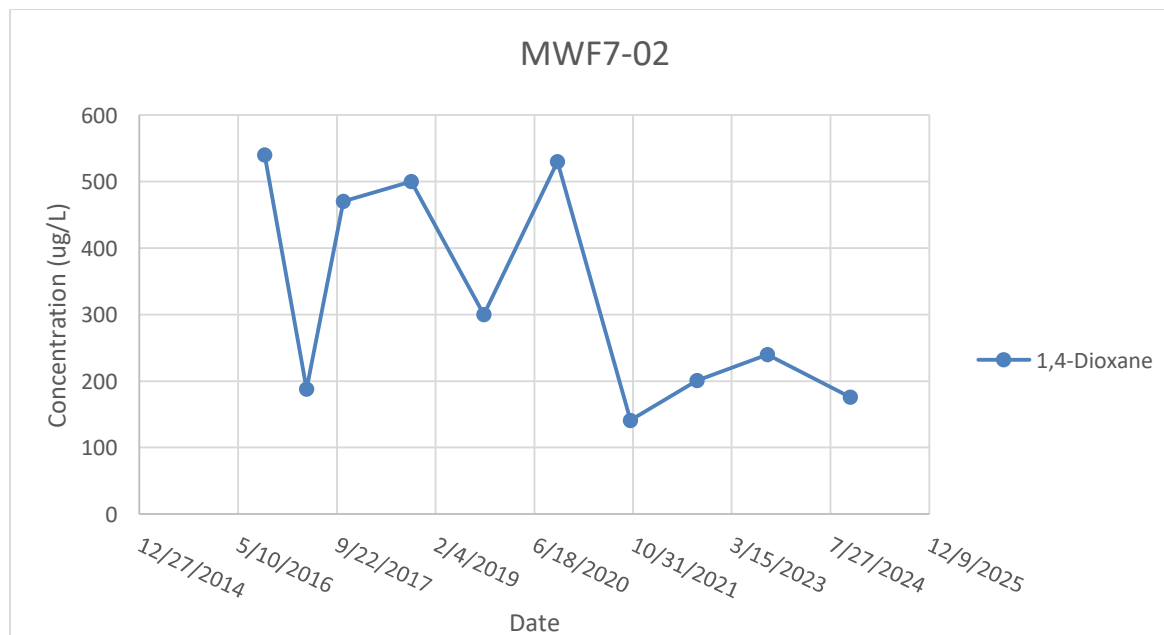
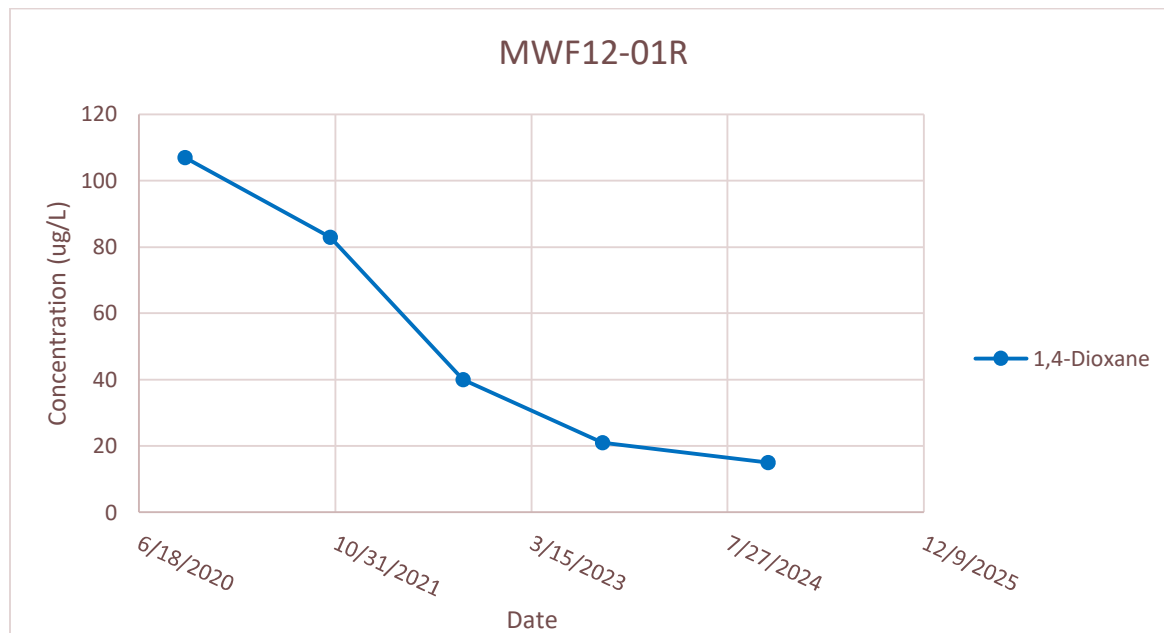
VOCs



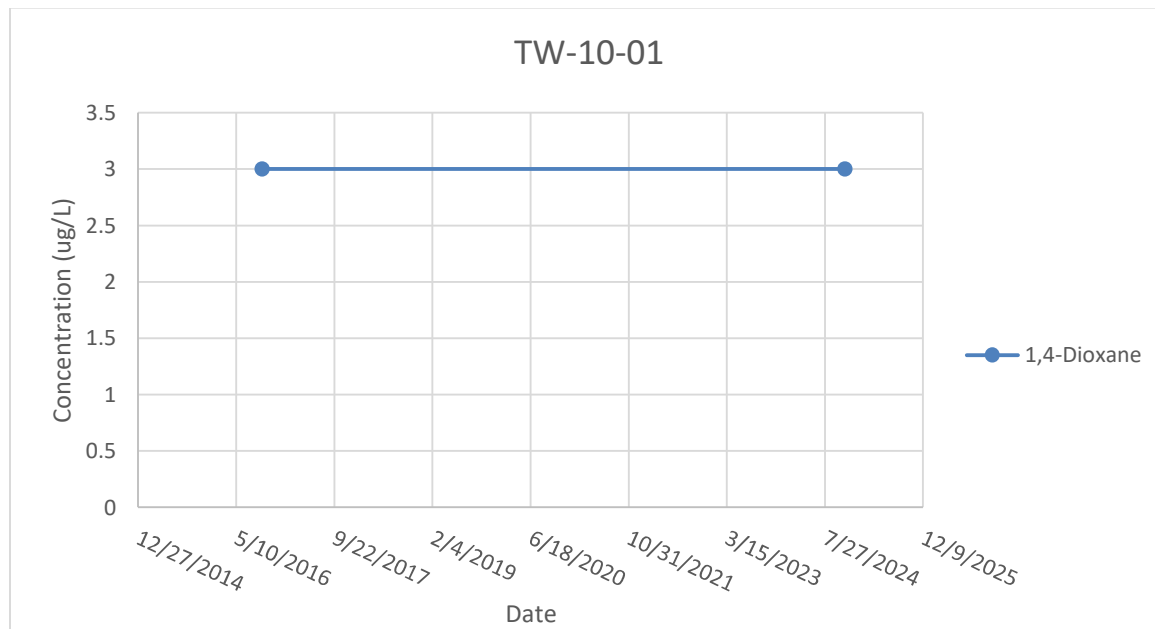
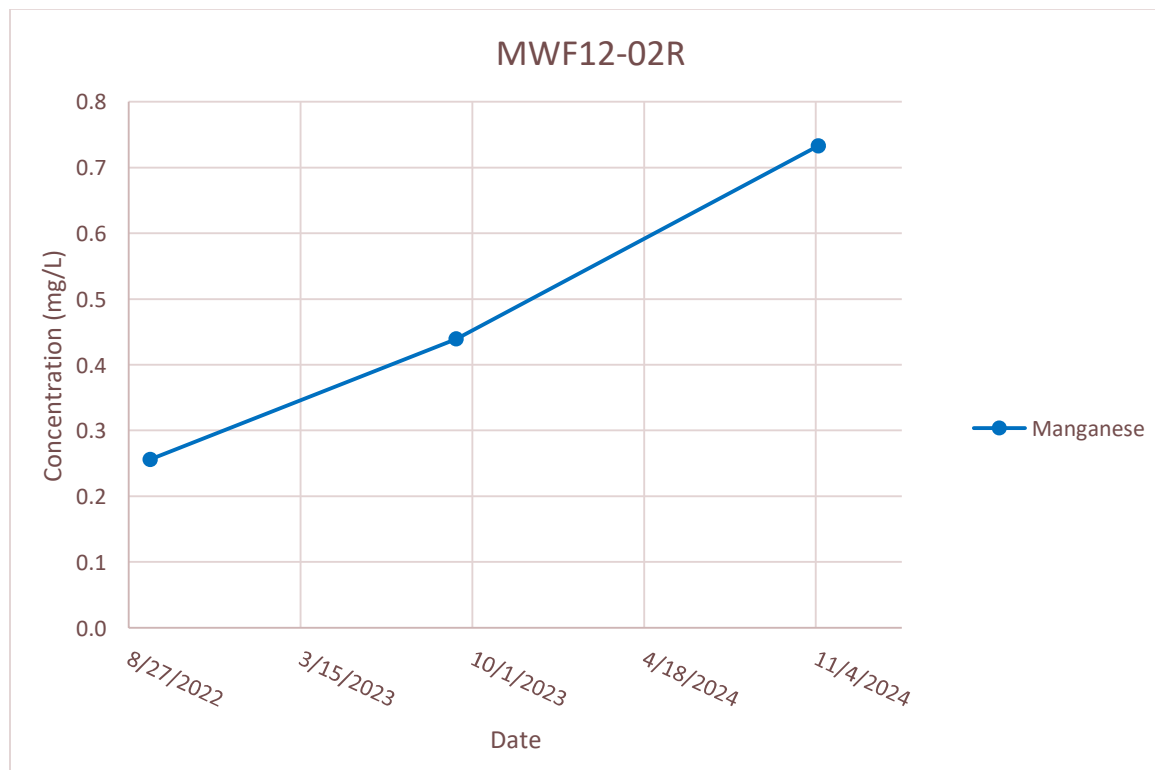
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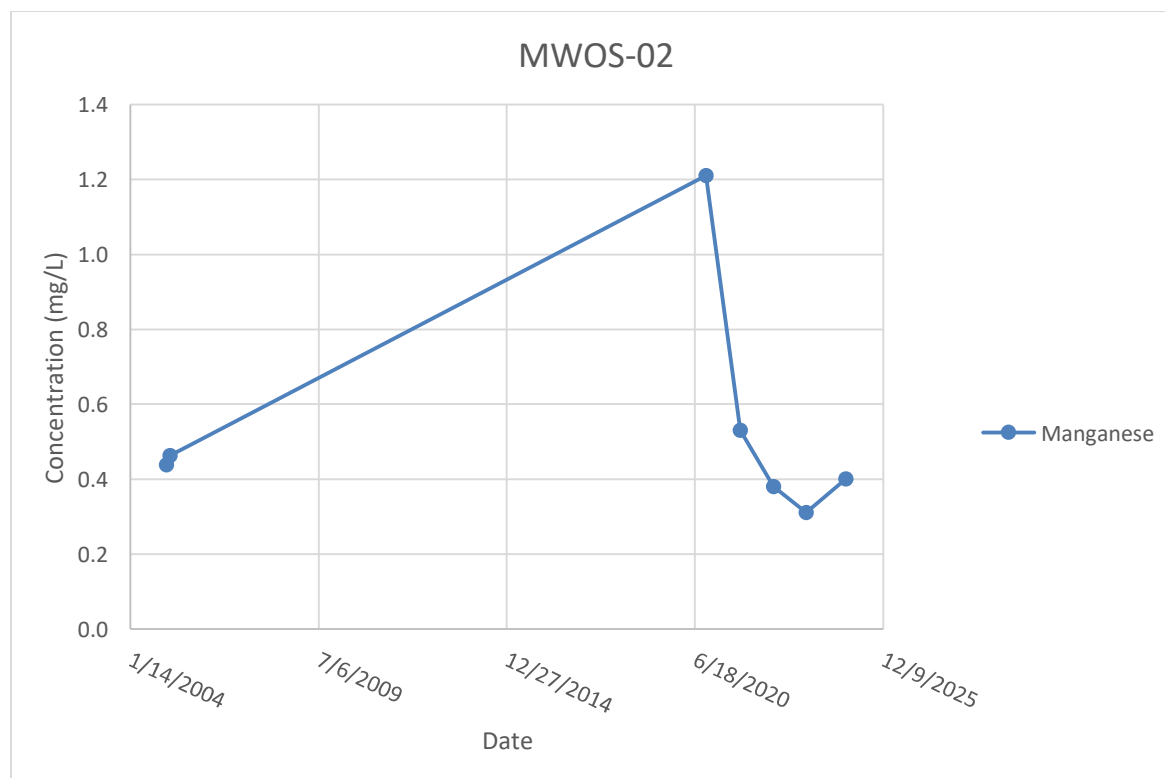
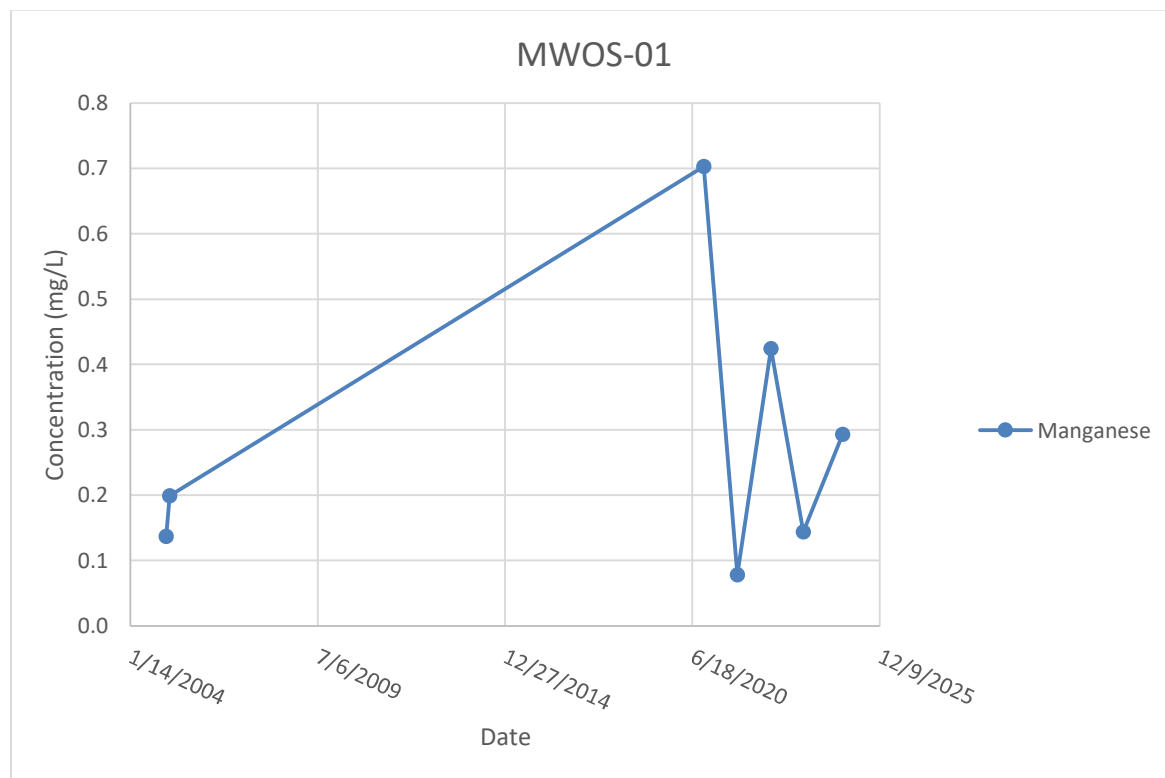
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1,4-Dioxane

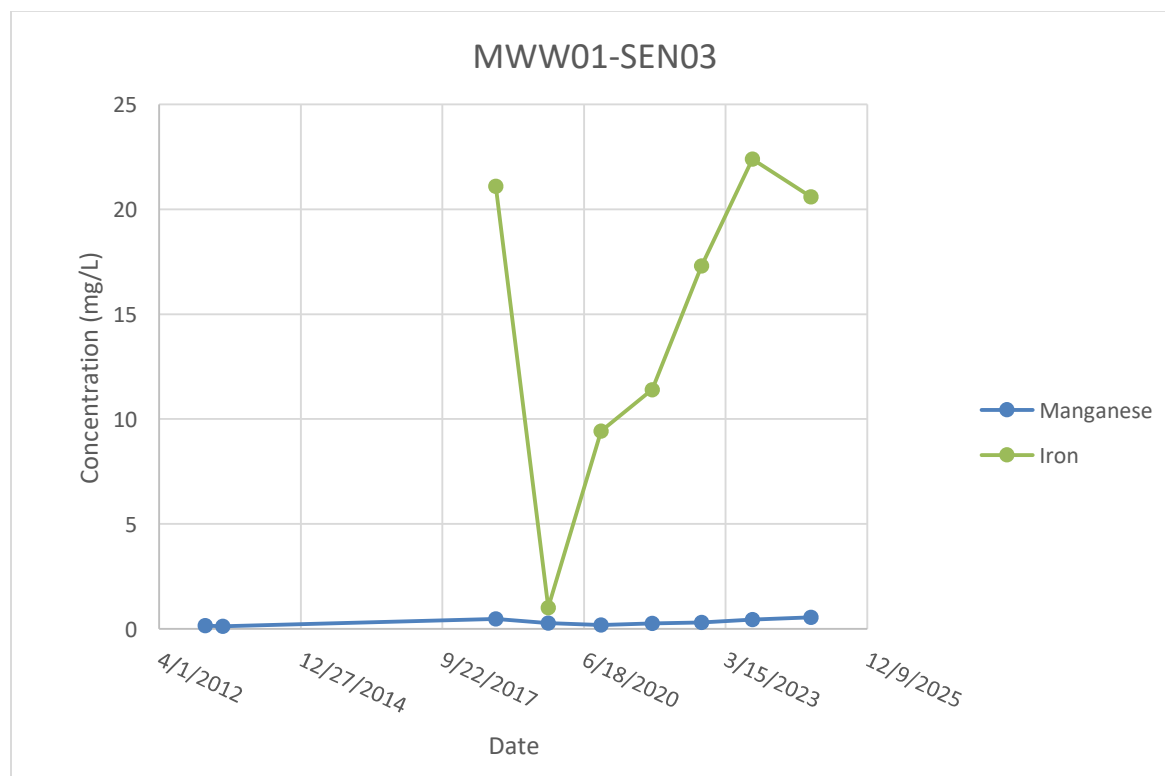
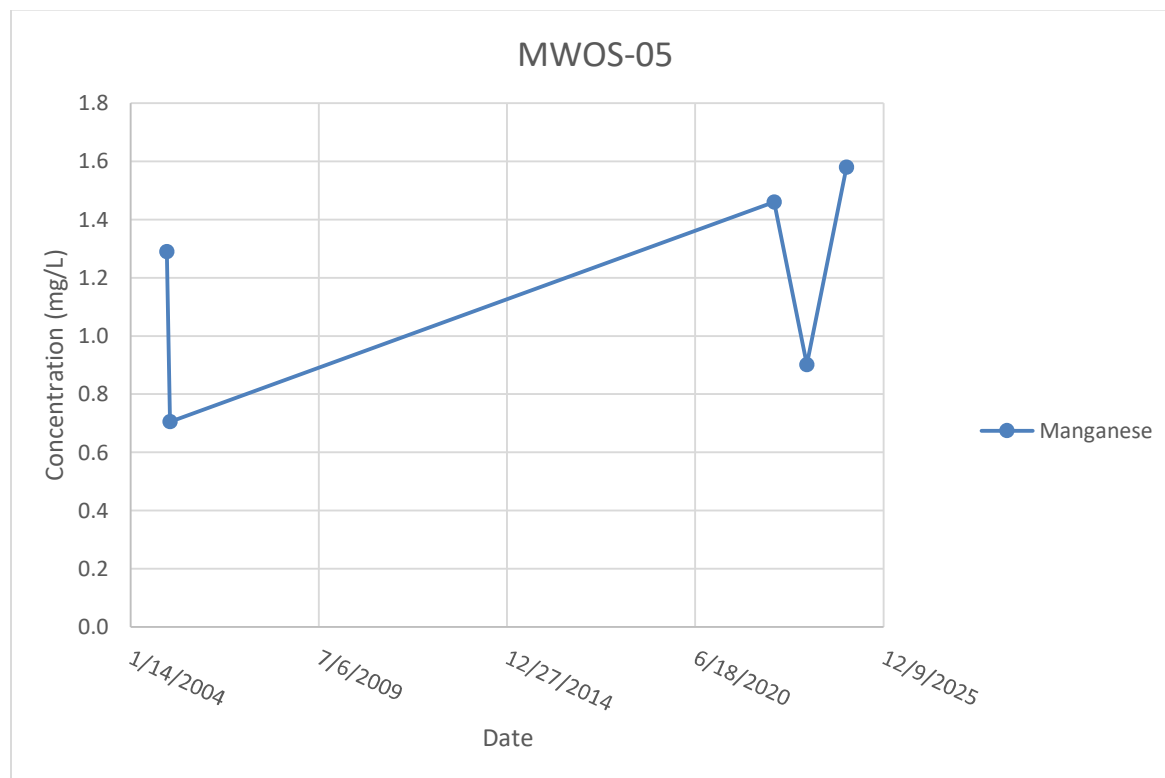
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Metals

USEPA Additional Sampling Requested Trend Graphs

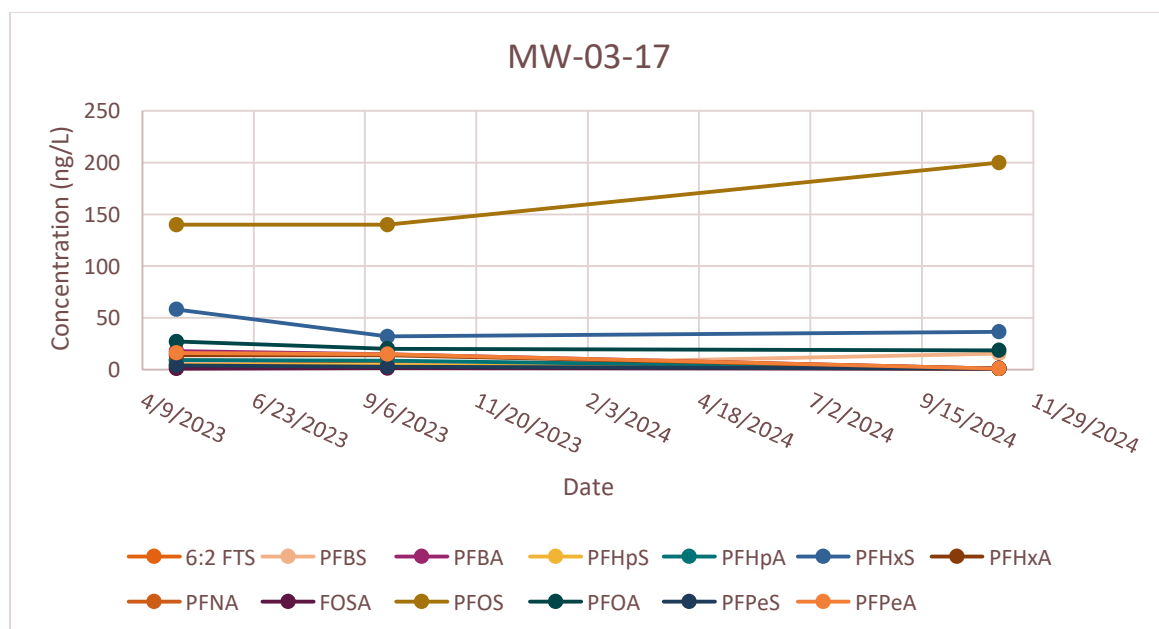
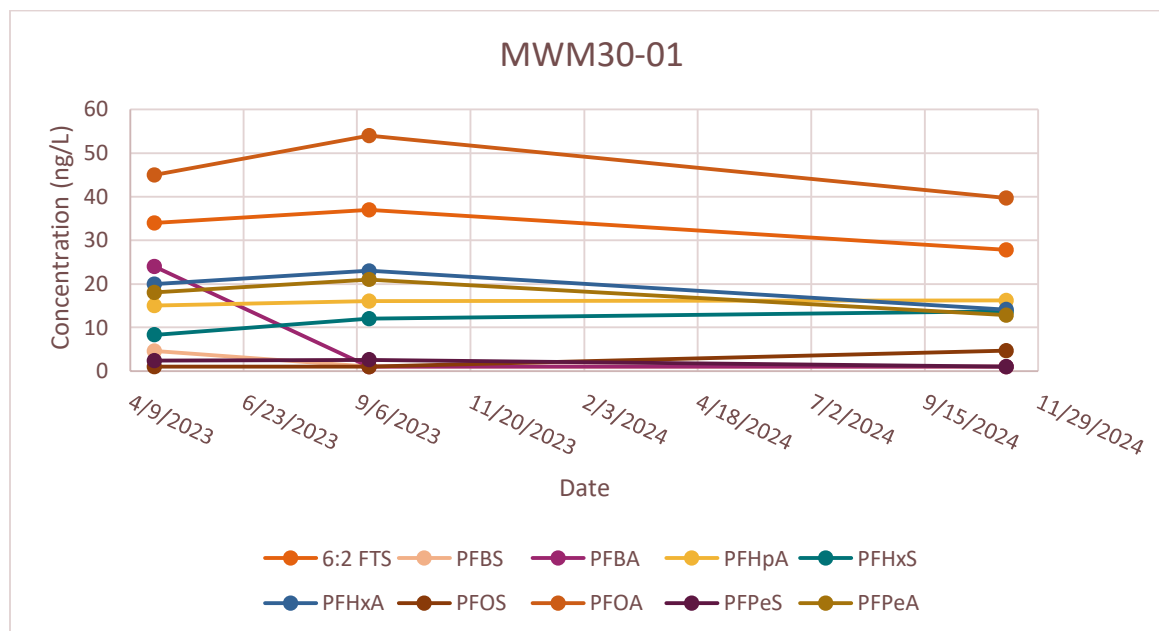


USEPA Additional Sampling Requested Trend Graphs

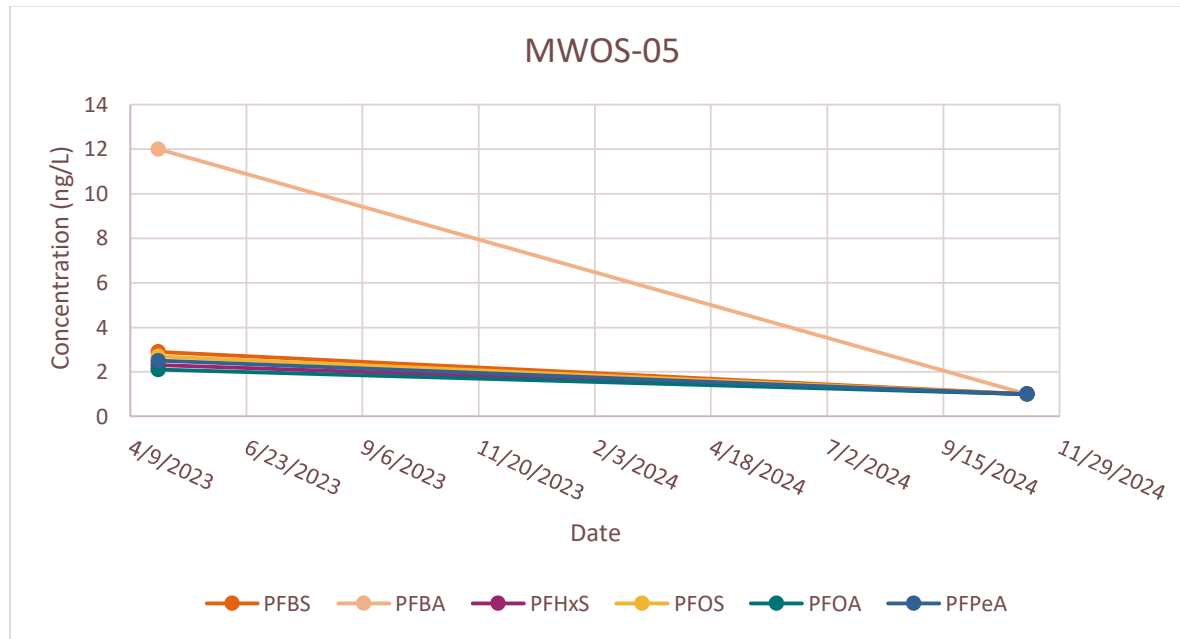
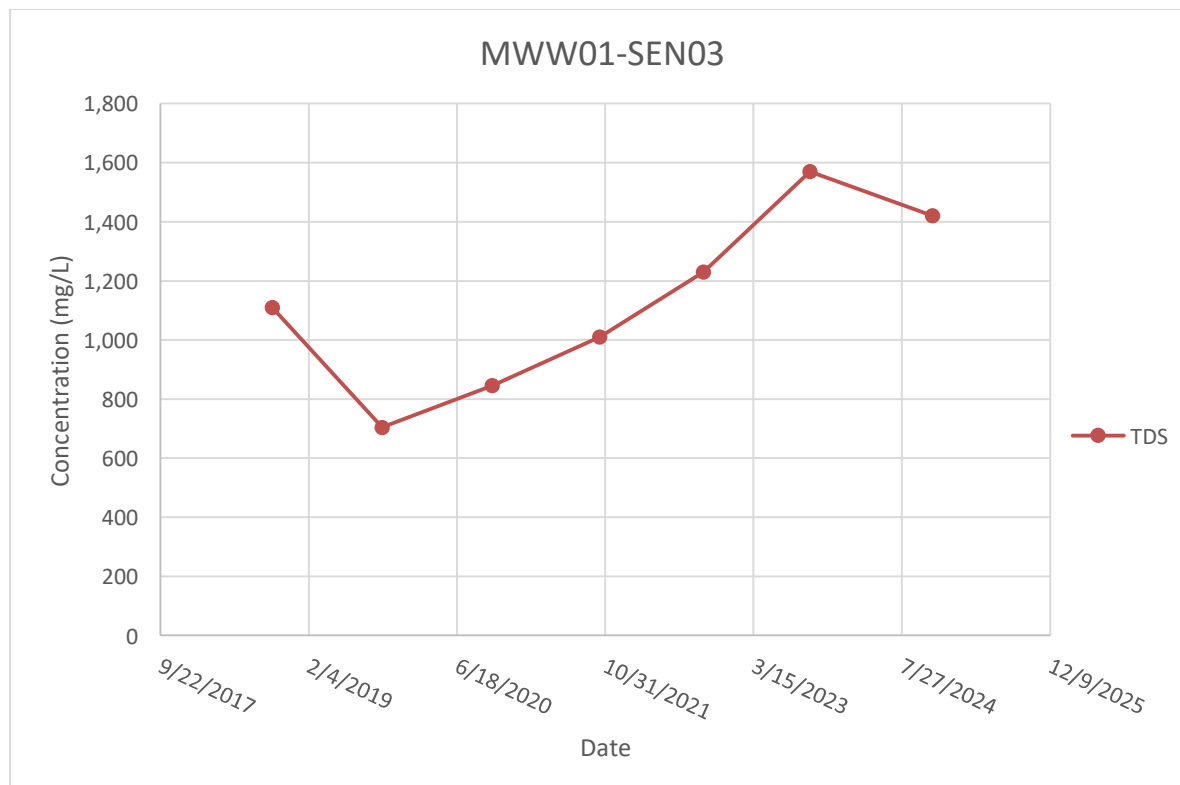


USEPA Additional Sampling Requested Trend Graphs

PFAS



USEPA Additional Sampling Requested Trend Graphs

TDS

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