



# 2023 Annual Groundwater Monitoring and Corrective Action Report

River Rouge Power Plant Bottom Ash  
Basin  
Coal Combustion Residual Unit  
1 Belanger Park Drive  
River Rouge, Michigan

January 2024

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## Executive Summary

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule), as amended. The CCR Rule, which became effective on October 19, 2015 (with amendments in 2018 and 2020), applies to the DTE Electric Company (DTE Electric) River Rouge Power Plant (RRPP) Bottom Ash Basin (BAB) CCR unit. Pursuant to the CCR Rule, no later than January 31, 2018, and annually thereafter, the owner or operator of a CCR unit must prepare an annual groundwater monitoring and corrective action report for the CCR unit documenting the status of groundwater monitoring and corrective action for the preceding year in accordance with §257.90(e).

On behalf of DTE Electric, TRC Engineers Michigan, Inc., the engineering entity of TRC, has prepared this Annual Report for calendar year 2023 activities at the RRPP former BAB CCR unit. In September 2020, CCR removal was completed at the RRPP BAB at which time the basin was repurposed into a non-CCR process water pond. The RRPP BAB CCR unit continued to implement the assessment monitoring program that was established on April 13, 2018 through the 2023 reporting period as specified in §257.95 concurrent with ongoing assessment and corrective action activities conducted pursuant to §257.96 through §257.98. The statistical evaluation of the 2023 Appendix IV groundwater data continue to show statistically significant groundwater concentrations above the GWPS for arsenic at MW-16-01 during the first semiannual 2023 event. Groundwater data collected through 2023 shows overall improvement in the arsenic groundwater quality with lower confidence limits decreasing below the GWPS at MW-16-01 in the second semiannual event. Similarly, lithium groundwater quality has shown lower confidence limits below GWPS during both semiannual 2023 events. There were no other results reported at statistically significant concentrations above the GWPSs for the remaining Appendix IV parameters for either 2023 semiannual assessment monitoring event.

DTE Electric continued to collect groundwater samples to define the nature and extent of the potential release of CCR per §257.95(g)(1) in 2023. Concentrations of the Appendix IV parameters were at statistically significant levels below the GWPSs in all nature and extent wells located around the perimeter of the RRPP BAB, delineating the extent of the potential CCR groundwater release. Nature and extent groundwater monitoring results have generally remained at concentrations below the GWPSs. All the monitoring data that have been collected and evaluated under §257.90 through §257.98 in 2023 are presented in this report.

DTE Electric proceeded with initiating an Assessment of Corrective Measures (ACM) per the CCR Rule by January 14, 2019, completed the initial ACM Report on April 15, 2019 and has completed Semi-Annual Progress Reports on the ongoing evaluations for remedy selection and design in accordance with §257.97a through 2023. Since the removal of CCR from the former BAB in 2020 and through the first semiannual monitoring period of 2022, arsenic at MW-16-01 was the only ongoing exceedance of the GWPS within the downgradient monitoring wells within the monitoring well network. In October 2022, DTE Electric revised the 2019 ACM to include additional innovative technology that was not considered in the initial ACM to address the persistent concentrations of arsenic at MW-16-01. As detailed in the October 2022 revised ACM, DTE Electric conducted a bench-scale treatability study in early 2022 using site



groundwater and soil to evaluate two in-situ treatment options for removing arsenic from groundwater at the former RRPP BAB CCR unit and to potentially provide a final groundwater remedy for this site. Results from this bench-scale study indicated that zero valent iron (ZVI) was effective at removing both arsenate and arsenite from site groundwater. In addition, application of ferrous sulfate and guar gum was successful at stimulating anaerobic bacteria and enhanced the reduction of arsenic from groundwater through biological processes.

On September 15, 2022, the groundwater collection system was shut down to allow the RRPP BAB CCR unit groundwater hydraulic and geochemistry conditions to stabilize prior to implementing an in-situ pilot test designed to confirm the findings of the bench-scale study. Beginning in late September 2022, DTE Electric commenced the in-situ pilot scale test centered on monitoring well MW-16-01 where elevated levels of arsenic have persisted during operation of the groundwater extraction system. The pilot test was completed in May 2023 and the results substantiated the bench study conclusions while also demonstrating that geochemical sequestration can be effectively applied via amendment injection to remove arsenic from groundwater in the affected/treated areas.

On October 12, 2023, DTE Electric discussed the results of the corrective measures assessment with interested and affected parties in a public meeting, providing at least 30 days for comments to be received prior to the formulation of a Selection of Final Remedy Report as required under §257.96(e). On November 30, 2023, the *Final Selection of Remedy Report* was completed with the final remedy selected being closure by removal with the “Geochemical Sequestration via Amendment Injection” for groundwater per §257.97.

Per §257.98(a)(1), DTE Electric will continue semiannual assessment monitoring per §257.95, along with annual nature and extent monitoring per §257.95(g)(1) for the RRPP BAB CCR unit in 2024 to evaluate the effectiveness of the implemented corrective measures. Additionally, DTE Electric anticipates that implementation of the selected final groundwater remedy will continue in 2024.

## 1.0 Introduction

On April 17, 2015, the United States Environmental Protection Agency (USEPA) published the final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) (the CCR Rule), as amended. The CCR Rule, which became effective on October 19, 2015 (with amendments in 2018 and 2020), applies to the DTE Electric Company (DTE Electric) River Rouge Power Plant (RRPP) Bottom Ash Basin (BAB). Pursuant to the CCR Rule, no later than January 31, 2018, and annually thereafter, the owner or operator of a CCR unit must prepare an annual groundwater monitoring and corrective action report for the CCR unit documenting the status of groundwater monitoring and corrective action for the preceding year in accordance with §257.90(e).

On behalf of DTE Electric, TRC Engineers Michigan, Inc., the engineering entity of TRC, has prepared this Annual Report for calendar year 2023 groundwater monitoring and corrective action activities at the RRPP BAB CCR unit (2023 Annual Report). Assessment monitoring is ongoing at the RRPP BAB CCR unit as specified in §257.95, concurrent with ongoing assessment and corrective action activities conducted pursuant to §257.96 through §257.98. Data that have been collected and evaluated under §257.90 through §257.98 in 2023 are presented in this report.

### 1.1 Program Summary

As documented in the January 31, 2018 *Annual Groundwater Monitoring Report for the River Rouge Power Plant* (TRC, January 2018), covering calendar year 2017 activities, DTE Electric noted that boron, fluoride, and pH were observed within groundwater at downgradient monitoring well(s) with statistically significant increases (SSIs) above background limits. Therefore, DTE Electric initiated an assessment monitoring program for the RRPP BAB CCR unit pursuant to §257.95 of the CCR Rule that included sampling and analyzing groundwater within the groundwater monitoring system for all constituents listed in Appendix IV.

The results from the baseline data collection period (August 2016 through July 2017) and the initial assessment monitoring sampling event (April 2018) were used to establish groundwater protection standards (GWPSs) for the Appendix IV constituents in accordance with §257.95(h), as presented in the October 15, 2018 *Assessment Monitoring Data Summary and Statistical Evaluation* (TRC, October 2018a). After the initial assessment monitoring sampling event, the monitoring system was sampled for the Appendix III and Appendix IV constituents in May 2018 (within 90 days from the initial Appendix IV sampling event) and in October 2018. Assessment monitoring data that was collected and evaluated in 2018 are presented in the *2018 Annual Groundwater Monitoring Report* (TRC, January 2019).

Results were reported at statistically significant levels above GWPSs for arsenic (monitoring well MW-16-01) and lithium (MW-16-01 and MW-16-02) during the initial assessment monitoring event for the groundwater samples collected in May 2018. DTE Electric placed a notification of the initial assessment monitoring event exceedance into the operating record on November 14, 2018 as required by §257.95(g) and within the timeframe required by §257.105(h)(8). Nature and extent groundwater sampling defined the extent of the potential release of CCR to be well within the groundwater capture zone of the proactively constructed groundwater collection system that operated as an interim remedy from March 2, 2018 to September 15, 2022 to

mitigate any potential risk of migration of groundwater from the area of the (now former) RRPP BAB.

DTE Electric proceeded with initiating an assessment of corrective measures (ACM) per the CCR Rule by January 14, 2019 and implemented activities to proactively manage the potential migration pathway such as continued operation of the groundwater extraction system and removal of CCR from the BAB. In September 2020, CCR removal was completed at the RRPP BAB at which time the basin was repurposed into a non-CCR process water pond. DTE continued to assess corrective measures options, completing a bench-study in 2022 and a pilot test study in 2023 to further evaluate remedial options presented in the ACM and inform final remedy selection pursuant to §257.97.

Assessment monitoring, including nature and extent monitoring, was performed in 2023 in accordance with §257.95 while corrective measures continued to be evaluated under §257.96. A public meeting to discuss corrective measures as required under §257.96(e) was held in October 2023, the final remedy for arsenic in groundwater has been selected in November 2023 per §257.97, and corrective action implementation is progressing pursuant to §257.98.

## 1.2 Site Overview

The RRPP BAB is located at 1 Belanger Park Drive, within the City of River Rouge in Wayne County, Michigan. The RRPP, including the BAB CCR unit, was originally constructed in the early 1950s, just northeast of the DTE Electric RRPP building. The power plant property is located at the confluence of the Rouge River and the Detroit River.

The RRPP BAB was an incised CCR surface impoundment. The impoundment is sheet-piled around the perimeters to approximately 30 feet below ground surface (ft bgs) into the native soil. The BAB was used for receiving sluiced bottom ash and other process flow effluent pumped from the power plant to the eastern end of the BAB. After CCR removal was completed in September 2020, the former BAB was repurposed into a non-CCR process water pond. There is a sheet pile weir near the middle of the former BAB that maintains the water elevation in the eastern portion to approximately 577.5 feet through gravity flow. The water in the western portion of the former BAB is maintained at an elevation of no higher than 577 feet before being discharged into the Detroit River in accordance with a National Pollution Discharge Elimination System (NPDES) permit.

## 1.3 Geology/Hydrogeology

The RRPP BAB CCR unit is located immediately adjacent to the Rouge River to the northeast near the intersection of the Rouge River and Detroit River (Figure 1). The RRPP CCR unit is underlain initially by approximately 10 feet of surficial fill of various composition (gravel, sand, silt and clay, brick and/or concrete fragments). The fill is partially saturated in some areas, but is not continuously saturated across the RRPP property, does not represent a significant, usable source of water, and is, therefore, not an aquifer. An organic layer is often encountered beneath the surficial fill that is then underlain by a silt/clay-rich unit that ranges from 3 to about 8 feet thick in the area of the BAB. Beneath the silt/clay-rich unit, there is a saturated sand and gravel unit that often coarsens from sand to gravel with depth. This coarse-grained sand and

gravel unit is present from as shallow as 15 ft bgs to as deep as 25.5 ft bgs. This same coarse-grained unit is observed in most of the historical boring logs across the RRPP and appears to be a relatively continuous unit across the RRPP property. Based on this information, this coarse-grained sand and gravel unit represents the uppermost aquifer present at the RRPP BAB CCR unit.

The coarse-grained sand and gravel uppermost aquifer is underlain by a more than 60-foot-thick contiguous silty clay-rich deposit that serves as a natural lower confining hydraulic barrier that isolates the uppermost aquifer from the underlying Dundee limestone that represents the next aquifer. There is no apparent hydraulic connection between the uppermost aquifer and the Dundee limestone aquifer, and the limestone aquifer is artesian.

Historically, a definitive groundwater flow direction to the northeast with an average gradient of 0.00067 foot/foot (using data from June 2016 through September 2017) within the uppermost aquifer was evident around the RRPP BAB CCR unit, with potential groundwater flow rates within the uppermost aquifer ranging from approximately 5.8 to 73 feet/year. The installation and continual operation of the groundwater collection system extraction wells surrounding the basin between March 2018 and September 2022 had changed the natural groundwater flow regime near the basin to an inward gradient that extended to the edge of the Rouge River. The radius of influence extended beyond all CCR monitoring wells, with the exception of the upgradient monitoring well MW-17-07 that is a background well located more than 1,500 feet up hydraulic gradient of the RRPP BAB CCR unit.

Since the suspension of extraction well operations in September 2022 to allow for the completion of an in-situ pilot test as described in Section 5.0, the groundwater flow regime is now similar to what was present in 2016 and 2017 before the groundwater extraction system was put into operation. There is a much lower groundwater hydraulic gradient/flow to the northeast through the center of the site towards the Rouge River with components of groundwater flow east towards the Detroit River along the east boundary and offsite to the northwest along the west boundary. The well layout is shown on Figure 2.

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## 2.0 Groundwater Monitoring

### 2.1 Monitoring Well Network

A groundwater monitoring system has been established for the RRPP BAB CCR unit as detailed in the *Groundwater Monitoring System Summary Report – DTE Electric Company River Rouge Power Plant Bottom Ash Basin Coal Combustion Residual Unit (GWMS Report)* (TRC, October 2017). The monitoring well network for the BAB CCR unit currently consists of five monitoring wells that are screened in the uppermost aquifer. The monitoring well locations are shown on Figure 2. Monitoring wells MW-17-06 and MW-17-07 are located south-southwest of the RRPP BAB and provide data on background groundwater quality that has not been affected by the CCR unit (total of two background wells). Monitoring wells MW-16-01 through MW-16-03 are located north-northeast, historically downgradient of the RRPP BAB CCR unit (total of three downgradient monitoring wells).

As shown on Figure 2, monitoring well MW-16-04S is used for water level measurements only. MW-16-04S was originally installed as a potential background monitoring well. However, based on concentrations of several Appendix III parameters, the proximity of the well to the BAB and the hydrogeology of the area, monitoring well MW-16-04S did not appear to be representative of background groundwater conditions; therefore, this well was excluded from the background monitoring network. As such, in June 2017, two additional monitoring wells (MW-17-06 and MW-17-07) were installed in the uppermost aquifer further upgradient on the southwest side of the RRPP main building for use as background wells (Figure 2).

In addition, eleven groundwater recovery wells were installed as part of a groundwater extraction system (Figure 2) and additional monitoring wells were added to evaluate the groundwater extraction system groundwater capture (Figure 2) in 2018. Although the groundwater extraction system did change groundwater flow significantly in the RRPP BAB CCR unit since beginning operation in early March 2018, the three compliance monitoring wells (MW-16-01 through MW-16-03) were still appropriately positioned to evaluate groundwater quality in the vicinity of the RRPP BAB CCR unit. The extraction well operations were suspended in September 2022 to allow for the completion of an in-situ pilot test; since then, the natural groundwater flow regime has re-established itself and monitoring wells MW-16-01 through MW-16-03 are positioned downgradient of the former RRPP BAB CCR unit, adjacent to the Rouge River (Figure 3 and Figure 4).

### 2.2 Semiannual Assessment Groundwater Monitoring

Per §257.95(d), all wells in the CCR unit monitoring program must be sampled at least semiannually. One semiannual event must include analysis for all parameters from Appendix III and Appendix IV and one semiannual event may include analysis for all Appendix III indicator parameters and those Appendix IV parameters that were detected during prior sampling. In addition to the Appendix III and IV parameters, field parameters including pH, dissolved oxygen, oxidation reduction potential, specific conductivity, temperature, and turbidity were collected at each well. Samples were collected and analyzed in accordance with the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company River Rouge Power Plant Bottom Ash Basin (QAPP)* (TRC, July 2016; revised August 2017).

### **2.2.1 Data Summary**

The first semiannual groundwater assessment monitoring event for 2023 was performed on April 3, 2023 and the second semiannual groundwater assessment monitoring event was performed on October 30 and 31, 2023. Both events were performed by TRC personnel and samples were analyzed by Eurofins Environment Testing America (Eurofins) in accordance with the QAPP. Static water elevation data were collected at all monitoring well locations in addition to surface water measuring points MP-01, MP-03, and MP-04 established along the Rouge River and Detroit River (Figure 2). Groundwater samples were collected from the two background monitoring wells and three downgradient monitoring wells for the Appendix III and Appendix IV parameters and field parameters. A summary of the groundwater data collected during both the semiannual events are provided on Table 1 (static groundwater elevation data), Table 2 (field data), and Table 3 (analytical results). The laboratory analytical reports are included in Appendix A.

### **2.2.2 Data Quality Review**

Data from each round were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The data were found to be complete and usable for the purposes of the CCR monitoring program. Data quality reviews are summarized in Appendix B.

### **2.2.3 Groundwater Flow Rate and Direction**

Groundwater elevation data collected during the 2023 semiannual monitoring events show that the groundwater flow regime has re-equilibrated to pre-pumping conditions, prior to when the groundwater extraction system was put into operation, following the suspension of extraction well operations to allow for the completion of the aforementioned in-situ pilot test. As a result, the groundwater hydraulic gradient and flow rate are much lower than they were under pumping conditions. In general, groundwater flow is to the northeast through the center of the RRPP BAB CCR unit towards the Rouge River with components flowing east towards the Detroit River along the east boundary and offsite to the northwest along the west property boundary. Groundwater elevations measured across the Site during the April and October 2023 sampling events are provided on Table 1 and were used to construct groundwater contour maps (Figures 3 and 4, respectively).

The average hydraulic gradients throughout the RRPP BAB CCR unit during the April and October 2023 events show a hydraulic gradient of approximately 0.0010 ft/ft during the April event and 0.00062 ft/ft during the October 2023 event. The gradients were calculated using the well pairs MW-17-06/MW-16-04S and MW-17-07/MW-17-06. Using the low hydraulic conductivity of 9.5 feet/day and high hydraulic conductivity of 120 feet/day, and an assumed effective porosity of 0.4, the estimated groundwater flow velocity ranges from approximately 0.024 feet/day (approximately 8.8 feet/year) to approximately 0.30 feet/day (approximately 110 feet/year) during the April 2023 event and approximately 0.015 feet/day (approximately 5.4 feet/year) to approximately 0.19 feet/day (approximately 68 feet/year) during the October 2023 event.



### 3.0 Statistical Evaluation

Assessment monitoring was continued at the RRPP BAB CCR unit while corrective measures were further evaluated in accordance with §257.96 and §257.97 as outlined in the ACM. The following section summarizes the statistical approach applied to assess the 2023 groundwater data in accordance with the assessment monitoring program. The statistical evaluation details are provided in Appendix C (Appendix IV Assessment Monitoring Statistical Evaluation – April 2023) and Appendix D (Appendix IV Assessment Monitoring Statistical Evaluation – October 2023).

#### 3.1 Establishing Groundwater Protection Standards

The Appendix IV GWPSs are used to determine whether groundwater has been impacted from the RRPP BAB CCR unit by statistically comparing concentrations in the assessment monitoring wells to their respective GWPS for each Appendix IV parameter. In accordance with §257.95(h) and the *Groundwater Statistical Evaluation Plan – DTE Electric Company River Rouge Power Plant Coal Combustion Residual Bottom Ash Basin* (Stats Plan) (TRC, October 2017), GWPSs were established for the Appendix IV parameters following the preliminary assessment monitoring event using nine rounds of data collected from the background monitoring wells MW-17-06 and MW-17-07 (July 2017 through April 2018). The calculation of the GWPSs is documented in the *Assessment Monitoring Data Summary and Statistical Evaluation* (TRC, October 2018a). The GWPS is established as the higher of the USEPA Maximum Contaminant Level (MCL) or statistically derived background level for constituents with MCLs and the higher of the USEPA Regional Screening Levels (RSLs) or background level for constituents with RSLs.

#### 3.2 Data Comparison to Groundwater Protection Standards – First Semiannual Event (April 2023)

Consistent with the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance) (USEPA, 2009), the preferred method for comparisons to a fixed standard are confidence limits. An exceedance of the standard occurs when the 99 percent lower confidence level of the downgradient data exceeds the GWPS. Confidence intervals were established per the statistical methods detailed in the *Appendix IV Assessment Monitoring Statistical Evaluation for April 2023* technical memorandum provided in Appendix C.

For each detected constituent, the concentrations for each well were first compared directly to the GWPS. Parameter-well combinations that included a direct exceedance of the GWPS were retained for further statistical analysis using confidence limits as detailed in the Appendix C technical memorandum. The calculated upper and lower confidence limits and comparison of the lower confidence limits to the GWPSs are provided in Table 4 for the April 2023 event.

The statistical evaluation of the April 2023 Appendix IV parameters shows a continued statistical exceedance of the GWPS for:

- Arsenic at MW-16-01.

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Lithium concentrations in groundwater at monitoring well MW-16-01 show a decrease, with the lower confidence limit below the GWPS during the April 2023 event. No other constituents were observed at statistically significant levels exceeding the Appendix IV GWPSs during the April 2023 assessment monitoring event.

### **3.3 Data Comparison to Groundwater Protection Standards – Second Semiannual Event (October 2023)**

Statistical analysis for the second semiannual monitoring event was performed using the statistical methods detailed in the *Appendix IV Assessment Monitoring Statistical Evaluation for October 2023* technical memorandum provided in Appendix D. The calculated upper and lower confidence limits and comparison of the lower confidence limits to the GWPSs for the October 2023 event are provided in Table 5.

The statistical evaluation of the October 2023 Appendix IV parameters shows that arsenic concentrations at MW-16-01 have decreased, with the lower confidence limit for arsenic below the GWPS during the October 2023 event. Similarly, lithium concentrations in groundwater at monitoring well MW-16-01 continue to show the lower confidence limit below the GWPS during the second semiannual event. No other constituents were observed at statistically significant levels exceeding the Appendix IV GWPSs during the October 2023 assessment monitoring event.



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## 4.0 Nature and Extent Groundwater Evaluation

### 4.1 Nature and Extent Groundwater Sampling

Per §257.95(g)(1), in the event that the facility determines, pursuant to §257.93(h), that there is a statistically significant exceedance of the GWPSs for one or more of the Appendix IV constituents, the facility must characterize the nature and extent of the release of CCR as well as any site conditions that may affect the remedy selected. As such, nature and extent groundwater sampling was completed on October 30 and 31, 2023, by TRC personnel from existing CCR network monitoring wells and the nature and extent monitoring wells installed in 2017.

DTE Electric collected groundwater elevation data at all site monitoring wells shown on Figure 4. In addition, DTE Electric collected groundwater samples at monitoring wells MW-16-04S, MW-17-05, MW-17-14, MW-17-15, MW-17-18, and MW-17-20. Samples were collected and analyzed in accordance with the QAPP. Field parameters were stabilized at each monitoring well prior to collecting groundwater samples. Field parameters are summarized in Table 2. Groundwater samples were analyzed by Eurofins for the Appendix III and detected Appendix IV parameters. A summary of the analytical groundwater data collected during the October 2023 nature and extent sampling event is provided on Table 6. The laboratory analytical reports are included in Appendix A.

Following the nature and extent sampling event, the RRPP BAB nature and extent groundwater data collected since 2018 were evaluated using confidence interval analysis in accordance with the Stats Plan as detailed in Appendix C. Concentrations of Appendix IV parameters generally remain below the GWPSs in the nature and extent samples collected for the RRPP BAB CCR unit in 2023. Lithium was present at a concentration slightly exceeding the GWPS at MW-17-05 in October 2023.<sup>1</sup> However, statistical analysis further confirms that there are no statistically significant concentrations present above the GWPS in these nature and extent wells when considering the most recent six monitoring events. In addition, all of the land that overlies the potentially affected groundwater is owned by DTE Electric.

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<sup>1</sup> Previous concentrations of arsenic at MW-17-15 and lithium at MW-17-14 and MW-17-15 also exceeded the GWPS but were at or below the GWPS in 2023.

## 5.0 Corrective Action

According to §257.95(g)(3), in the event that the facility determines, pursuant to §257.93(h), that a result is reported above GWPSs for one or more of the Appendix IV constituents, the facility will, within 90 days of performing the statistical analysis, initiate an assessment of corrective measures to prevent further releases, to remediate any releases, and to restore affected area to original conditions. The Assessment of Corrective Measures (ACM) must be completed within 90 days unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances.

### 5.1 Interim Measures

Although DTE Electric proceeded with initiating an ACM per §257.96 by January 14, 2019, DTE Electric has been proactively managing the potential groundwater migration pathway since 2018. DTE Electric's initial management strategy was to operate a groundwater extraction system to mitigate any risk of migration of CCR constituents from the RRPP BAB to groundwater. This system was constructed during January and February 2018, began operation in early March 2018, was operational through September 15, 2022, and effectively captured CCR-affected groundwater in the vicinity of the RRPP BAB in that time period. As discussed below, the groundwater system was shut down in late September 2022 to allow the hydraulic and geochemistry conditions in groundwater to stabilize prior to implementing an in-situ pilot test.

### 5.2 Assessment of Corrective Measures and CCR Removal

DTE Electric completed the initial ACM Report on April 15, 2019 and completed Semi-Annual Progress Reports on the remedy selection and design in accordance with §257.97a through 2023. The preferred alternative in the ACM was to close the RRPP BAB by CCR removal with offsite CCR disposal and to address the CCR-affected groundwater by continuing to operate the already in-place interim groundwater collection system.

The RRPP BAB CCR unit Closure Plan was updated in July 2020 (TRC, July 2020). In accordance with §257.101(a)(1), closure for the River Rouge BAB CCR unit was initiated 30-days after the last known receipt of waste. The RRPP ceased coal fired operations in May 2020 and the BAB closure by CCR removal was completed with construction equipment mobilization occurring in June 2020, and CCR removal occurring from July through September 2020 as documented in the *Bottom Ash Basin Closure Certification Report DTE Electric Company River Rouge Power Plant Bottom Ash Basin Coal Combustion Residual Unit, 1 Belanger Park Drive, River Rouge, Michigan* (Closure Certification Report) (TRC, November 2020, Revised February 2021). After CCR removal was completed, the former BAB was repurposed into a non-CCR process water pond.

Since the removal of CCR through the first semiannual monitoring period of 2022 arsenic at MW-16-01 was the only ongoing exceedance of the GWPS within the downgradient monitoring wells within the monitoring well network. In October 2022, DTE Electric revised the 2019 ACM to include additional innovative technology that was not considered in the initial ACM to address the persistent post-CCR removal concentrations of arsenic at MW-16-01. As detailed in an

October 2022 ACM update (TRC, October 4, 2022), DTE Electric conducted a bench-scale treatability study in early 2022 using site groundwater and soil to evaluate two in-situ treatment options for removing arsenic from groundwater at the former RRPP BAB CCR unit and to potentially provide a final groundwater remedy for this site. These included: (1) zero-valent iron (ZVI), and (2) a solution of guar gum and ferrous sulfate. Results from this study indicated that ZVI was effective at removing both arsenate and arsenite from site groundwater. In addition, application of ferrous sulfate and guar gum was successful at stimulating anaerobic bacteria and enhanced the reduction of arsenic from groundwater through biological processes.

On September 15, 2022, the groundwater collection system was shut down to allow the RRPP BAB CCR unit groundwater hydraulic and geochemistry conditions to stabilize prior to implementing an in-situ pilot test. Beginning in November 2022, DTE Electric commenced an in-situ pilot scale test centered on monitoring well MW-16-01 where elevated levels of arsenic have persisted during operation of the groundwater extraction system. This pilot test was completed to confirm that the findings from the bench scale testing, namely that the in-place immobilization of arsenic by injection of specific reagents, could be replicated in the field and subsequently scaled up for full implementation as an alternative to continued operation of the groundwater extraction system. The in-situ pilot study was completed in May 2023. The pilot test results substantiated the bench study conclusions while also demonstrating that geochemical sequestration can be effectively applied via amendment injection to remove arsenic from groundwater in the affected/treated areas. The pilot test results are presented within the October 11, 2023 *Groundwater Treatment System Pilot-Scale Test: Implementation and Performance Report* (TRC, October 11, 2023) that is also included in Appendix E.

### 5.3 Public Meeting and Final Remedy Selection

On October 12, 2023, DTE Electric discussed the results of the corrective measures assessment with interested and affected parties in a public meeting, providing at least 30 days for comments to be received prior to the formulation of a Selection of Final Remedy Report as required under §257.96(e). On November 30, 2023, the *Final Selection of Remedy Report* was completed with the final remedy selected being closure by removal with the Geochemical Sequestration via Amendment Injection for groundwater per §257.97 (TRC, November 30, 2023). Documentation of the October 12, 2023 public meeting required under §257.96(e) is included within the *Final Selection of Remedy Report* (TRC November 30, 2023).

### 5.4 Implementation of the Corrective Action Program

Key components of the final remedy have already been completed with the removal of CCR from the BAB in 2020 as documented in the Closure Certification Report. Additional remedial measures to address the remaining arsenic concentrations above the GWPS in groundwater using geochemical sequestration via amendment injection is anticipated to begin in 2024. In addition, pursuant to §257.98(1), DTE Electric will continue to implement its assessment monitoring program to evaluate the effectiveness of the corrective action remedy and to demonstrate attainment of the GWPSs at the completion of remedial activities.

In order to monitor remediation progress, additional monitoring wells MW-17-16 and MW-17-17 have been added as nature and extent wells to the monitoring program. The following table

summarizes the corrective action groundwater monitoring program:

| Well ID                        | Location Relative to BAB | Static Water Level | Analysis            | Semiannual Frequency | Annual Frequency |
|--------------------------------|--------------------------|--------------------|---------------------|----------------------|------------------|
| Background                     |                          |                    |                     |                      |                  |
| MW-17-06                       | Upgradient               | X                  | Appendix III and IV | X                    |                  |
| MW-17-07                       | Upgradient               | X                  | Appendix III and IV | X                    |                  |
| Downgradient Compliance        |                          |                    |                     |                      |                  |
| MW-16-01                       | Downgradient             | X                  | Appendix III and IV | X                    |                  |
| MW-16-02                       | Downgradient             | X                  | Appendix III and IV | X                    |                  |
| MW-16-03                       | Downgradient             | X                  | Appendix III and IV | X                    |                  |
| MW-17-16                       | Downgradient             | X                  | Appendix III and IV | X                    |                  |
| MW-17-17                       | Downgradient             | X                  | Appendix III and IV | X                    |                  |
| Nature and Extent              |                          |                    |                     |                      |                  |
| MW-16-04S                      | Upgradient               | X                  | Appendix III and IV |                      | X                |
| MW-17-05                       | Side Gradient            | X                  | Appendix III and IV |                      | X                |
| MW-17-14                       | Side Gradient            | X                  | Appendix III and IV |                      | X                |
| MW-17-15                       | Upgradient               | X                  | Appendix III and IV |                      | X                |
| MW-17-18                       | Upgradient               | X                  | Appendix III and IV |                      | X                |
| MW-17-20                       | Upgradient               | X                  | Appendix III and IV |                      | X                |
| Static Water Level Measurement |                          |                    |                     |                      |                  |
| MW-17-08                       | Side Gradient            | X                  |                     | X                    |                  |
| MW-17-12                       | Upgradient               | X                  |                     | X                    |                  |
| MW-17-13                       | Side Gradient            | X                  |                     | X                    |                  |
| MW-17-19                       | Side Gradient            | X                  |                     | X                    |                  |
| MP-01                          | Inside BAB               | X                  |                     | X                    |                  |
| MP-03                          | River                    | X                  |                     | X                    |                  |

Groundwater monitoring at the background, downgradient compliance, and nature and extent well locations will be performed in accordance with the existing QAPP. Statistical analysis will be performed at the downgradient compliance wells and downgradient nature and extent wells in accordance with the Stats Plan and Unified Guidance, as appropriate, to evaluate the effectiveness of the remedy and progress toward attaining the GWPS during and after the remedy implementation. Attainment of the GWPS will be demonstrated in groundwater downgradient from the BAB over a period of three consecutive years using the statistical

procedures and performance standards in §257.93(f) and (g).

## 6.0 Conclusions and Recommendations

In 2023, the semiannual assessment monitoring and annual nature and extent groundwater sampling continued, showing that there are no new constituents observed at statistically significant levels exceeding the Appendix IV GWPSs during the 2023 reporting period. The final remedy for arsenic in groundwater has been selected in November 2023 per §257.97 and corrective action implementation is progressing pursuant to §257.98.

Per §257.98(a)(1), DTE Electric will continue semiannual assessment monitoring as specified in §257.95, along with annual nature and extent monitoring per §257.95(g)(1), in 2024 for the RRPP BAB CCR unit to evaluate the effectiveness of the implemented corrective measures. Additionally in 2024, DTE Electric anticipates that implementation of the selected final groundwater remedy will continue in 2024. DTE Electric will continue executing the self-implementing groundwater compliance schedule in conformance with §257.90 - §257.98. The next semiannual monitoring events are scheduled for the second and fourth calendar quarters of 2024.


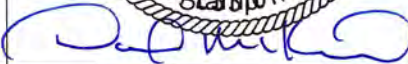
## 7.0 Groundwater Monitoring Report Certification

The U.S. EPA's Disposal of Coal Combustion Residuals from Electric Utilities Final Rule Title 40 CFR Part 257 §257.90(e) requires that the owner or operator of an existing CCR unit prepare an annual groundwater monitoring and corrective action report.

**Annual Groundwater Monitoring Report Certification  
River Rouge Power Plant Bottom Ash Basin  
River Rouge, Michigan**

**CERTIFICATION**

I hereby certify that the annual groundwater and corrective action report presented within this document for the RRPP BAB CCR unit has been prepared to meet the requirements of Title 40 CFR §257.90(e) of the Federal CCR Rule. This document is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of Title 40 CFR §257.90(e).

|  |   |  |
|--|---|--|
| Name:<br><br>David B. McKenzie, P.E.         | Expiration Date:<br><br>December 17, 2025 | <br> |
| Company:<br><br>TRC Engineers Michigan, Inc. | Date:<br><br>January 31, 2024             |  |

*January 31, 2024*



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## 8.0 References

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## Tables

**Table 1**  
 Summary of Nature and Extent Well Groundwater Elevation Data – April and October 2023  
 River Rouge Power Plant Bottom Ash Basins – RCRA CCR Monitoring Program  
 River Rouge, Michigan

| Well ID   | Date Installed | Reference Elevation   | Geologic Unit of Screened Interval             | Screened Interval Elevation<br>ft | 4/3/2023                  |                             | 10/30/2023                |                             |
|-----------|----------------|-----------------------|--|-----------------------------------|---------------------------|-----------------------------|---------------------------|-----------------------------|
|           |                |                       |  |                                   | Depth to Water<br>ft BTOC | Groundwater Elevation<br>ft | Depth to Water<br>ft BTOC | Groundwater Elevation<br>ft |
| MP-01     | 6/23/2016      | 579.26 <sup>(1)</sup> | NA   | NA                                | 2.20                      | 577.06                      | 2.20                      | 577.06                      |
| MP-03     | 6/20/2017      | 578.42 <sup>(1)</sup> | NA   | NA                                | 3.70                      | 574.72                      | 4.53                      | 573.89                      |
| MP-04     | 6/20/2017      | 579.17 <sup>(1)</sup> | NA   | NA                                | 4.50                      | 574.67                      | 5.27                      | 573.90                      |
| MW-16-01  | 6/13/2016      | 583.02                | Sand/Silty Clay/Gravel                         | 562.0 to 557.0                    | 7.95                      | 575.07                      | 8.90                      | 574.12                      |
| MW-16-02  | 6/20/2017      | 582.79                | Silty Sand/Sand/Clay/Gravel                    | 561.4 to 556.4                    | 7.68                      | 575.11                      | 8.53                      | 574.26                      |
| MW-16-03  | 6/10/2016      | 582.75                | Sand with Gravel                               | 561.4 to 556.4                    | 7.77                      | 574.98                      | 8.72                      | 574.03                      |
| MW-16-04S | 3/17/2016      | 582.41                | Sand and Gravel                                | 561.2 to 556.2                    | 6.59                      | 575.82                      | 7.47                      | 574.94                      |
| MW-17-01  | 6/7/2017       | 578.47                | Sand/Silty Sand                                | 558.0 to 563.0                    | 1.65                      | 576.82                      | 3.57                      | 574.90                      |
| MW-17-02  | 6/7/2017       | 581.24                | Sand   | 553.8 to 558.8                    | 5.40                      | 575.84                      | 7.43                      | 573.81                      |
| MW-17-03  | 6/8/2017       | 580.20                | Sand/Gravel with Sand/Clay                     | 552.5 to 557.5                    | 4.83                      | 575.37                      | 6.43 <sup>(2)</sup>       | 573.77                      |
| MW-17-04  | 6/8/2017       | 578.01                | Sand   | 553.5 to 558.5                    | 2.95                      | 575.06                      | 4.01                      | 574.00                      |
| MW-17-05  | 6/9/2017       | 581.61                | Sand/Silty Sand with Gravel                    | 553.6 to 558.6                    | 5.66                      | 575.95                      | 6.70                      | 574.91                      |
| MW-17-06  | 6/7/2017       | 583.01                | Silty Sand/Gravel with Sand                    | 559.9 to 554.9                    | 6.23                      | 576.78                      | 7.48                      | 575.53                      |
| MW-17-07  | 6/14/2017      | 583.05                | Silt with Sand/Clay                            | 564.0 to 559.0                    | 5.71                      | 577.34                      | 7.18                      | 575.87                      |
| MW-17-08  | 6/12/2017      | 580.52                | Clay/Sand/Gravel                               | 553.0 to 558.0                    | 5.40                      | 575.12                      | 6.35                      | 574.17                      |
| MW-17-09  | 6/13/2017      | 581.05                | Clay/Sand/Gravel with Sand                     | 553.6 to 558.6                    | 6.10                      | 574.95                      | 6.86                      | 574.19                      |
| MW-17-10  | 6/13/2017      | 581.41                | Silty Sand/Clay/Sand                           | 555.7 to 560.7                    | 4.98                      | 576.43                      | 6.71                      | 574.70                      |
| MW-17-12  | 12/12/2017     | 580.51                | Silty Sand/Gravel with Sand                    | 555.5 to 560.5                    | 4.75                      | 575.76                      | 5.60                      | 574.91                      |
| MW-17-13  | 12/6/2017      | 578.90                | Silty Sand/Clay/Gravel with Sand               | 555.9 to 560.9                    | 3.70                      | 575.12                      | 4.55                      | 574.27                      |
| MW-17-14  | 12/7/2017      | 579.35                | Clay/Gravel with Sand                          | 554.9 to 559.9                    | 4.24                      | 575.11                      | 5.00                      | 574.35                      |
| MW-17-15  | 12/8/2017      | 579.75                | Silty Sand/Clay/Gravel with Sand               | 556.0 to 561.0                    | 4.42                      | 575.33                      | 5.31                      | 574.44                      |
| MW-17-16  | 12/7/2017      | 579.73                | Sand with Silt/Clay with Silt/Gravel with Sand | 558.2 to 567.2                    | 4.51                      | 575.22                      | 5.55                      | 574.18                      |
| MW-17-17  | 12/11/2017     | 579.35                | Silty Sand/Sand with Gravel                    | 557.8 to 562.8                    | 4.32                      | 575.03                      | 5.07                      | 574.28                      |
| MW-17-18  | 12/8/2017      | 579.00                | Sand and Clay                                  | 557.7 to 562.7                    | 2.88                      | 576.12                      | 3.92                      | 575.08                      |
| MW-17-19  | 12/11/2017     | 577.99                | Sand and Clay                                  | 551.4 to 556.4                    | 2.23                      | 575.76                      | 4.32                      | 573.67                      |
| MW-17-20  | 12/12/2017     | 579.40                | Clay/Sand/Gravel with Sand                     | 555.1 to 560.1                    | 3.35                      | 576.05                      | 4.40                      | 575.00                      |

**Notes:**

Elevations are reported in feet relative to the North American Vertical Datum of 1988.

ft BTOC - feet below top of casing

NA - not applicable

NM - not measured

1) Elevation represents the point of reference used to collect surface water level measurements.

2) Elevation collected on October 31, 2023.

**Table 2**  
 Summary of Field Data – April and October 2023  
 River Rouge Power Plant – RCRA CCR Monitoring Program  
 River Rouge, Michigan

| Sample Location | Sample Date | Dissolved Oxygen (mg/L) | Oxidation Reduction Potential (mV) | pH (SU) | Specific Conductivity (umhos/cm) | Temperature (deg C) | Turbidity (NTU) |
|-----------------|-------------|-------------------------|------------------------------------|---------|----------------------------------|---------------------|-----------------|
| MW-16-01        | 4/3/2023    | 1.48                    | -148.2                             | 7.0     | 1,067                            | 10.4                | 5.39            |
|                 | 10/30/2023  | 1.85                    | -282.1                             | 9.9     | 967                              | 13.8                | 1.07            |
| MW-16-02        | 4/3/2023    | 1.49                    | -91.0                              | 7.0     | 1,081                            | 12.0                | 2.67            |
|                 | 10/30/2023  | 1.87                    | -100.6                             | 7.2     | 1,102                            | 13.1                | 1.27            |
| MW-16-03        | 4/3/2023    | 2.79                    | -44.9                              | 7.0     | 552                              | 11.8                | 1.71            |
|                 | 10/30/2023  | 1.88                    | -112.8                             | 7.4     | 432                              | 13.0                | 0.00            |
| MW-17-06        | 4/3/2023    | 1.28                    | -91.7                              | 6.5     | 3,091                            | 14.0                | 20.3            |
|                 | 10/30/2023  | 2.04                    | -48.6                              | 6.6     | 3,458                            | 15.0                | 4.76            |
| MW-17-07        | 4/3/2023    | 1.45                    | -41.0                              | 6.5     | 7,235                            | 11.2                | 11.3            |
|                 | 10/30/2023  | 2.31                    | -35.1                              | 6.7     | 7,233                            | 13.4                | 1.52            |
| MW-16-04S       | 10/30/2023  | 1.90                    | -91.3                              | 7.6     | 1,222                            | 12.4                | 1.28            |
| MW-17-05        | 10/31/2023  | 1.60                    | -13.6                              | 6.6     | 2,906                            | 12.3                | 2.79            |
| MW-17-14        | 10/31/2023  | 3.00                    | -65.0                              | 7.1     | 1,901                            | 13.1                | 0.49            |
| MW-17-15        | 10/31/2023  | 2.65                    | -72.3                              | 7.2     | 1,411                            | 12.9                | 23.6            |
| MW-17-18        | 10/31/2023  | 1.54                    | -39.5                              | 6.8     | 1,914                            | 14.1                | 2.89            |
| MW-17-20        | 10/31/2023  | 1.54                    | -49.5                              | 6.7     | 3,672                            | 12.7                | 0.88            |

**Notes:**

- mg/L - Milligrams per Liter.
- mV - Millivolts.
- SU - Standard Units.
- umhos/cm - Micromhos per centimeter.
- °C - Degrees Celsius.
- NTU - Nephelometric Turbidity Unit

**Table 3**  
 Summary of Groundwater Sampling Results (Analytical): April and October 2023  
 River Rouge Power Plant Bottom Ash Basin – RCRA CCR Monitoring Program  
 River Rouge, Michigan

|                        |       | Sample Location: |         |      |           | MW-17-06   |            | MW-17-07 |            | MW-16-01     |            | MW-16-02 |            | MW-16-03 |            |
|------------------------|-------|------------------|---------|------|-----------|------------|------------|----------|------------|--------------|------------|----------|------------|----------|------------|
|                        |       | Sample Date:     |         |      |           | 4/3/2023   | 10/30/2023 | 4/3/2023 | 10/30/2023 | 4/3/2023     | 10/30/2023 | 4/3/2023 | 10/30/2023 | 4/3/2023 | 10/30/2023 |
| Constituent            | Unit  | EPA MCL          | EPA RSL | UTL  | GWPS      | Background |            |          |            | downgradient |            |          |            |          |            |
| <b>Appendix III</b>    |       |                  |         |      |           |            |            |          |            |              |            |          |            |          |            |
| Boron                  | ug/L  | NC               | NA      | NA   | NA        | 460        | 440        | 630      | 550        | 1,000        | 780        | 460      | 550        | 210      | 130        |
| Calcium                | ug/L  | NC               | NA      | NA   | NA        | 280,000    | 310,000    | 410,000  | 450,000    | 150,000      | 24,000     | 170,000  | 200,000    | 65,000   | 60,000     |
| Chloride               | mg/L  | 250*             | NA      | NA   | NA        | 700        | 830        | 2,200    | 2,100      | 47           | 300        | 52       | 54         | 45       | 42         |
| Fluoride               | mg/L  | 4.0              | NA      | NA   | NA        | 0.31       | 0.27       | < 0.25   | 0.34       | 0.62         | 0.78       | 0.28     | 0.32       | 0.32     | 0.29       |
| pH, Field              | su    | 6.5 - 8.5*       | NA      | NA   | NA        | 6.5        | 6.6        | 6.5      | 6.7        | 7.0          | 9.9        | 7.0      | 7.2        | 7.0      | 7.4        |
| Sulfate                | mg/L  | 250*             | NA      | NA   | NA        | 500        | 460        | 1,300    | 1,300      | 440          | 120        | 430      | 550        | < 1      | < 1        |
| Total Dissolved Solids | mg/L  | 500*             | NA      | NA   | NA        | 2,100      | 2,600      | 5,700    | 6,400      | 950          | 720        | 990      | 1,000      | 300      | 320        |
| <b>Appendix IV</b>     |       |                  |         |      |           |            |            |          |            |              |            |          |            |          |            |
| Antimony               | ug/L  | 6.0              | NA      | 2.0  | 6.0       | < 2        | --         | < 2      | --         | < 2          | --         | < 2      | --         | < 2      | --         |
| Arsenic                | ug/L  | 10               | NA      | 32   | 32        | 16         | 13         | 17       | 18         | 10           | 5.2        | < 5      | < 5        | < 5      | < 5        |
| Barium                 | ug/L  | 2,000            | NA      | 150  | 2,000     | 130        | 150        | 29       | 33         | 110          | 79         | 120      | 140        | 32       | 26         |
| Beryllium              | ug/L  | 4.0              | NA      | 1.0  | 4.0       | < 1        | --         | < 1      | --         | < 1          | --         | < 1      | --         | < 1      | --         |
| Cadmium                | ug/L  | 5.0              | NA      | 1.0  | 5.0       | < 1        | --         | < 1      | --         | < 1          | --         | < 1      | --         | < 1      | --         |
| Chromium               | ug/L  | 100              | NA      | 2.0  | 100       | < 5        | --         | < 5      | --         | < 5          | --         | < 5      | --         | < 5      | --         |
| Cobalt                 | ug/L  | NC               | 6.0     | 23   | 23        | 1.1        | < 1        | 6.9      | 6.9        | < 1          | < 1        | < 1      | < 1        | < 1      | < 1        |
| Fluoride               | mg/L  | 4.0              | NA      | 1.3  | 4.0       | 0.31       | 0.27       | < 0.25   | 0.34       | 0.62         | 0.78       | 0.28     | 0.32       | 0.32     | 0.29       |
| Lead                   | ug/L  | NC               | 15      | 1.0  | 15        | < 1        | --         | < 1      | --         | < 1          | --         | < 1      | --         | < 1      | --         |
| Lithium                | ug/L  | NC               | 40      | 34   | <b>40</b> | 23         | 27         | 28       | 30         | <b>66</b>    | <b>52</b>  | 20       | 31         | 8.8      | 8.8        |
| Mercury                | ug/L  | 2.0              | NA      | 0.20 | 2.0       | < 0.2      | --         | < 0.2    | --         | < 0.2        | --         | < 0.2    | --         | < 0.2    | --         |
| Molybdenum             | ug/L  | NC               | 100     | 22   | 100       | 8.2        | 8.2        | 13       | 13         | < 5          | < 5        | < 5      | < 5        | < 5      | < 5        |
| Radium-226             | pCi/L | NC               | NA      | NA   | NA        | 1.26       | 1.13       | 0.670    | 0.420      | < 0.336      | < 0.293    | 0.517    | 0.454      | 0.637    | < 0.286    |
| Radium-228             | pCi/L | NC               | NA      | NA   | NA        | 1.92       | 2.03       | 1.28     | < 0.544    | < 0.84       | < 0.485    | < 1.13   | 1.00       | < 0.812  | < 0.627    |
| Radium-226/228         | pCi/L | 5.0              | NA      | 2.83 | 5.0       | 3.17       | 3.17       | 1.95     | 0.904      | < 0.84       | < 0.485    | 1.22     | 1.45       | 1.19     | < 0.627    |
| Selenium               | ug/L  | 50               | NA      | 5.0  | 50        | < 5        | --         | < 5      | --         | < 5          | --         | < 5      | --         | < 5      | --         |
| Thallium               | ug/L  | 2.0              | NA      | 1.0  | 2.0       | < 1        | --         | < 1      | --         | < 1          | --         | < 1      | --         | < 1      | --         |

**Notes:**

- ug/L - micrograms per liter.
- mg/L - milligrams per liter.
- SU - standard units; pH is a field parameter.
- pCi/L - picocuries per liter.
- NA - not applicable.
- NC - no criteria.
- MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
- RSL - Regional Screening Level from 83 FR 36435.
- UTL - Upper Tolerance Limit (95%) of the background data set.
- GWPS - Groundwater Protection Standard. GWPS is the higher of the MCL/RSL and UTL.
- \* - Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- Bold** value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the CCR rules.

**Table 4**  
 Summary of Groundwater Protection Standard Exceedances - April 2023  
 River Rouge Power Plant Bottom Ash Basin – RCRA CCR Monitoring Program  
 River Rouge, Michigan

| Appendix IV | Units | GWPS | MW-16-01 |     |
|-------------|-------|------|----------|-----|
|             |       |      | LCL      | UCL |
| Arsenic     | ug/L  | 32   | 46       | 190 |
| Lithium     | ug/L  | 40   | 35       | 65  |

**Notes:**

ug/L - micrograms per liter.

GWPS - Groundwater Protection Standard.

UCL - Upper Confidence Limit (99%) of the downgradient data set.

LCL - Lower Confidence Limit (99%) of the downgradient data set.

Indicates a statistically significant exceedance of the GWPS.  
 An exceedance occurs when the LCL exceeds the GWPS.

**Table 5**

Summary of Groundwater Protection Standard Exceedances – October 2023  
River Rouge Power Plant Bottom Ash Basin – RCRA CCR Monitoring Program  
River Rouge, Michigan

| Appendix IV | Units | GWPS | MW-16-01 |     |
|-------------|-------|------|----------|-----|
|             |       |      | LCL      | UCL |
| Arsenic     | ug/L  | 32   | 19       | 180 |
| Lithium     | ug/L  | 40   | 35       | 65  |


**Notes:**

ug/L - micrograms per liter.

GWPS - Groundwater Protection Standard.

UCL - Upper Confidence Limit (99%) of the downgradient data set.

LCL - Lower Confidence Limit (99%) of the downgradient data set.

 Indicates a statistically significant exceedance of the GWPS.  
An exceedance occurs when the LCL exceeds the GWPS.



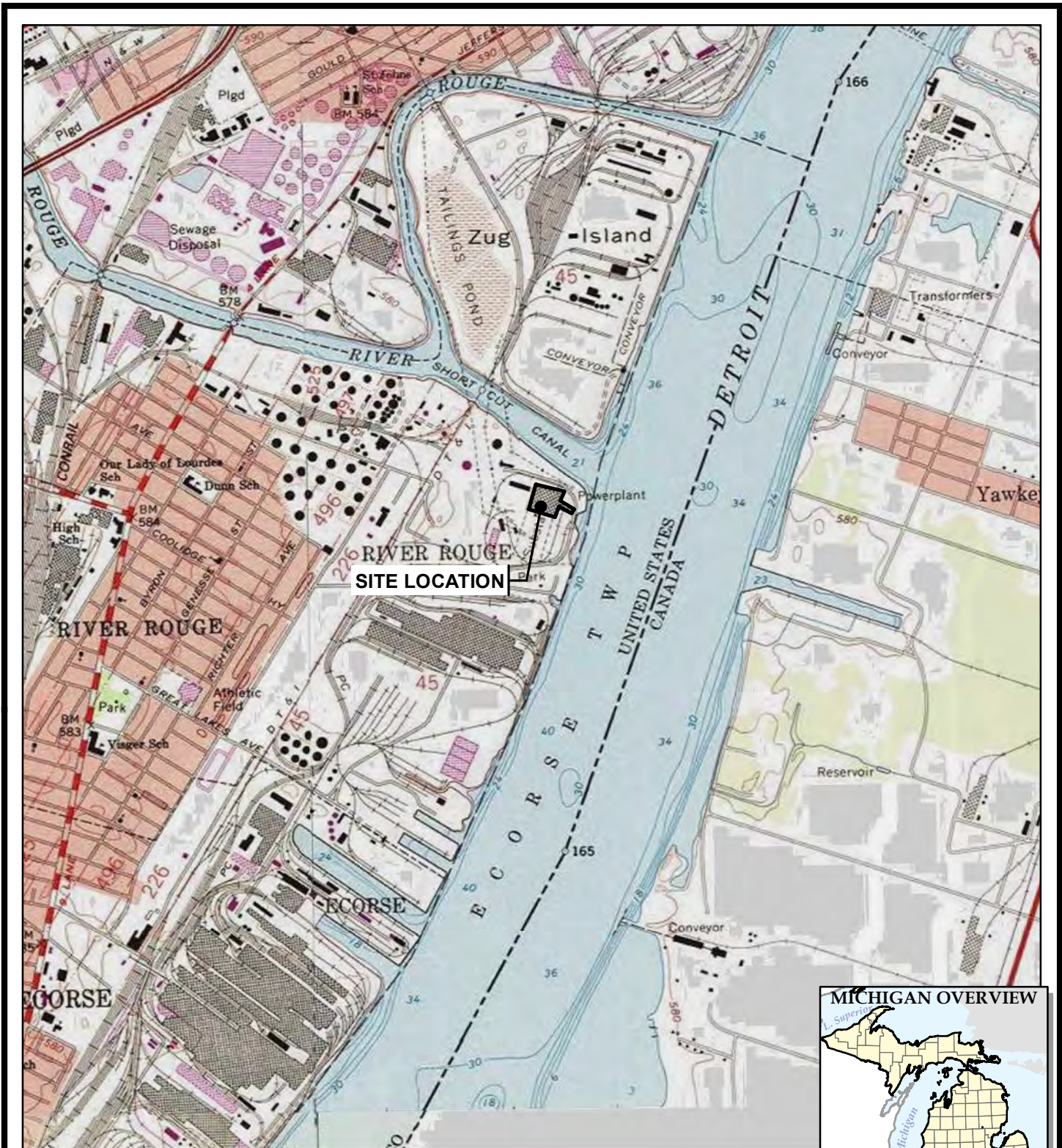
**Table 6**  
 Summary of Groundwater Sampling Results (Analytical): October 2023  
 River Rouge Power Plant Bottom Ash Basin – RCRA CCR Monitoring Program  
 River Rouge, Michigan

|                        |       |            |         |      |           | Sample Location: | MW-16-04S  | MW-17-05   | MW-17-14   | MW-17-15   | MW-17-18   | MW-17-20   |
|------------------------|-------|------------|---------|------|-----------|------------------|------------|------------|------------|------------|------------|------------|
|                        |       |            |         |      |           | Sample Date:     | 10/30/2023 | 10/31/2023 | 10/31/2023 | 10/31/2023 | 10/31/2023 | 10/31/2023 |
| Constituent            | Unit  | EPA MCL    | EPA RSL | UTL  | GWPS      | Nature & Extent  |            |            |            |            |            |            |
| <b>Appendix III</b>    |       |            |         |      |           |                  |            |            |            |            |            |            |
| Boron                  | ug/L  | NC         | NA      | NA   | NA        | 680              | 570        | 540        | 790        | 330        | 430        |            |
| Calcium                | ug/L  | NC         | NA      | NA   | NA        | 220,000          | 340,000    | 180,000    | 150,000    | 210,000    | 360,000    |            |
| Chloride               | mg/L  | 250*       | NA      | NA   | NA        | 99               | 700        | 540        | 340        | 460        | 1,100      |            |
| Fluoride               | mg/L  | 4.0        | NA      | NA   | NA        | 0.62             | 0.28       | 0.77       | 0.81       | 0.32       | 0.25       |            |
| pH, Field              | su    | 6.5 - 8.5* | NA      | NA   | NA        | 7.6              | 6.6        | 7.1        | 7.2        | 6.8        | 6.7        |            |
| Sulfate                | mg/L  | 250*       | NA      | NA   | NA        | 620              | 540        | 120        | 220        | 130        | 320        |            |
| Total Dissolved Solids | mg/L  | 500*       | NA      | NA   | NA        | 1,100            | 2,400      | 1,500      | 1,100      | 1,400      | 2,700      |            |
| <b>Appendix IV</b>     |       |            |         |      |           |                  |            |            |            |            |            |            |
| Antimony               | ug/L  | 6.0        | NA      | 2.0  | 6.0       | --               | --         | --         | --         | --         | --         |            |
| Arsenic                | ug/L  | 10         | NA      | 32   | 32        | < 5              | < 5        | < 5        | 18         | < 5        | < 5        |            |
| Barium                 | ug/L  | 2,000      | NA      | 150  | 2,000     | 180              | 170        | 660        | 270        | 130        | 140        |            |
| Beryllium              | ug/L  | 4.0        | NA      | 1.0  | 4.0       | --               | --         | --         | --         | --         | --         |            |
| Cadmium                | ug/L  | 5.0        | NA      | 1.0  | 5.0       | --               | --         | --         | --         | --         | --         |            |
| Chromium               | ug/L  | 100        | NA      | 2.0  | 100       | --               | --         | --         | --         | --         | --         |            |
| Cobalt                 | ug/L  | NC         | 6.0     | 23   | 23        | < 1              | 1          | < 1        | < 1        | < 1        | < 1        |            |
| Fluoride               | mg/L  | 4.0        | NA      | 1.3  | 4.0       | 0.62             | 0.28       | 0.77       | 0.81       | 0.32       | 0.25       |            |
| Lead                   | ug/L  | NC         | 15      | 1.0  | 15        | --               | --         | --         | --         | --         | --         |            |
| Lithium                | ug/L  | NC         | 40      | 34   | <b>40</b> | 37               | <b>43</b>  | 24         | <b>41</b>  | 19         | 30         |            |
| Mercury                | ug/L  | 2.0        | NA      | 0.20 | 2.0       | --               | --         | --         | --         | --         | --         |            |
| Molybdenum             | ug/L  | NC         | 100     | 22   | 100       | 21               | < 5        | < 5        | 15         | < 5        | < 5        |            |
| Radium-226             | pCi/L | NC         | NA      | NA   | NA        | --               | --         | --         | --         | --         | --         |            |
| Radium-228             | pCi/L | NC         | NA      | NA   | NA        | --               | --         | --         | --         | --         | --         |            |
| Radium-226/228         | pCi/L | 5.0        | NA      | 2.83 | 5.0       | --               | --         | --         | --         | --         | --         |            |
| Selenium               | ug/L  | 50         | NA      | 5.0  | 50        | --               | --         | --         | --         | --         | --         |            |
| Thallium               | ug/L  | 2.0        | NA      | 1.0  | 2.0       | --               | --         | --         | --         | --         | --         |            |

**Notes:**

- ug/L - micrograms per liter.
- mg/L - milligrams per liter.
- SU - standard units; pH is a field parameter.
- pCi/L - picocuries per liter.
- NA - not applicable.
- NC - no criteria.
- MCL - Maximum Contaminant Level, EPA Drinking Water Standards and Health Advisories, April, 2012.
- RSL - Regional Screening Level from 83 FR 36435.
- UTL - Upper Tolerance Limit (95%) of the background data set.
- GWPS - Groundwater Protection Standard. GWPS is the higher of the MCL/RSL and UTL.
- \* - Secondary Maximum Contaminant Level (SMCL), EPA Secondary Drinking Water Regulations (SDWR) April, 2012.
- Bold** value indicates an exceedance of the GWPS. Data from downgradient monitoring wells are screened against the GWPS for evaluation purposes only. Confidence intervals will be used to determine compliance per the CCR rules.

## Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.



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TRC - GIS

|          |   |
|----------|---|
| PROJECT: | <b>DTE ELECTRIC COMPANY<br/>RIVER ROUGE POWER PLANT<br/>1 BELANGER PARK DRIVE<br/>RIVER ROUGE, MICHIGAN</b> |
| TITLE:   | <b>SITE LOCATION MAP</b>  |

|              |                     |
|--------------|---------------------|
| DRAWN BY:    | A. FOJTIK           |
| CHECKED BY:  | J. KRENZ            |
| APPROVED BY: | V. BUENING          |
| DATE:        | JANUARY 2024        |
| PROJ. NO.:   | 518728.0005         |
| FILE:        | 518728-0005-001.mxd |

**FIGURE 1**



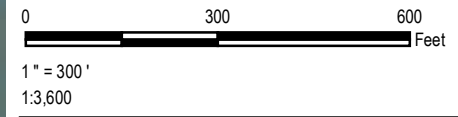


**LEGEND**

- COMPLIANCE WELLS
- MONITORING POINT
- NATURE AND EXTENT WELLS
- EXTRACTION WELL

**NOTES**

1. BASE MAP IMAGERY FROM GOOGLE, AUGUST 2022.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN JUNE 2016 & JUNE 2017.



|              |              |  |             |
|--------------|--------------|--|-------------|
| PROJECT:     |              | <b>DTE ELECTRIC COMPANY<br/>RIVER ROUGE POWER PLANT BOTTOM ASH BASIN<br/>1 BELANGER PARK DRIVE<br/>RIVER ROUGE, MICHIGAN</b> |             |
| TITLE:       |              | <b>MONITORING NETWORK<br/>AND SITE PLAN</b>  |             |
| DRAWN BY:    | A. FOJTIK    | PROJ NO.:  | 518728.0005 |
| CHECKED BY:  | J. KRENZ     | <b>FIGURE 2</b>  |             |
| APPROVED BY: | V. BUENING   |  |             |
| DATE:        | JANUARY 2024 |  |             |
|              |              | 1540 Eisenhower Place<br>Ann Arbor, MI 48108-3284<br>Phone: 734.971.7080<br>www.trccompanies.com                             |             |
| FILE NO.:    |              | 518728-0005-002.mxd  |             |



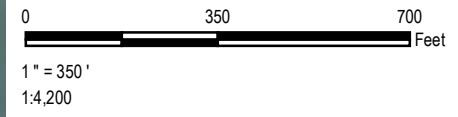


**LEGEND**

- COMPLIANCE WELLS
- MONITORING POINT
- NATURE AND EXTENT WELLS
- EXTRACTION WELL
- GROUNDWATER CONTOUR (0.5' INTERVAL, DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION
- (574.85)* ELEVATION FT (NAVD 88)

**NOTES**

1. BASE MAP IMAGERY FROM GOOGLE, AUGUST 2022.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN JUNE 2016 & JUNE 2017.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.



|              |              |  |             |
|--------------|--------------|--|-------------|
| PROJECT:     |              | <b>DTE ELECTRIC COMPANY<br/>RIVER ROUGE POWER PLANT BOTTOM ASH BASIN<br/>1 BELANGER PARK DRIVE<br/>RIVER ROUGE, MICHIGAN</b> |             |
| TITLE:       |              | <b>GROUNDWATER POTENTIOMETRIC<br/>SURFACE MAP<br/>APRIL 2023</b>   |             |
| DRAWN BY:    | A. FOJTIK    | PROJ NO.:  | 518728.0005 |
| CHECKED BY:  | B. YELEN     | <b>FIGURE 3</b>  |             |
| APPROVED BY: | V. BUENING   |  |             |
| DATE:        | JANUARY 2024 |  |             |



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FILE NO.: 518728-0005-003.mxd



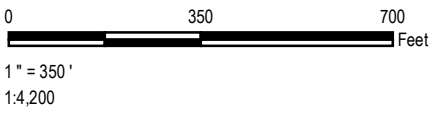


**LEGEND**

- COMPLIANCE WELLS
- MONITORING POINT
- NATURE AND EXTENT WELLS
- EXTRACTION WELL
- GROUNDWATER CONTOUR (0.5' INTERVAL, DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION
- (574.85)* ELEVATION FT (NAVD 88)

**NOTES**

1. BASE MAP IMAGERY FROM GOOGLE, AUGUST 2022.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN JUNE 2016 & JUNE 2017.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.



|              |              |  |             |
|--------------|--------------|--|-------------|
| PROJECT:     |              | <b>DTE ELECTRIC COMPANY<br/>RIVER ROUGE POWER PLANT BOTTOM ASH BASIN<br/>1 BELANGER PARK DRIVE<br/>RIVER ROUGE, MICHIGAN</b> |             |
| TITLE:       |              | <b>GROUNDWATER POTENTIOMETRIC SURFACE MAP<br/>OCTOBER 2023</b>   |             |
| DRAWN BY:    | A. FOJTIK    | PROJ NO.:  | 518728.0005 |
| CHECKED BY:  | J. KRENZ     | <b>FIGURE 4</b>  |             |
| APPROVED BY: | V. BUENING   |  |             |
| DATE:        | JANUARY 2024 |  |             |



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# Appendix A Laboratory Reports



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Vincent Buening  
TRC Environmental Corporation.  
1540 Eisenhower Place  
Ann Arbor, Michigan 48108-7080

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## JOB DESCRIPTION

CCR DTE River Rouge Power Plant

## JOB NUMBER

240-183128-1



# Eurofins Canton

## Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Authorized for release by  
Kris Brooks, Project Manager II  
[Kris.Brooks@et.eurofinsus.com](mailto:Kris.Brooks@et.eurofinsus.com)  
(330)966-9790

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# Definitions/Glossary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Qualifiers

### Metals

| Qualifier | Qualifier Description                                    |
|-----------|--|
| U         | Indicates the analyte was analyzed for but not detected. |

### General Chemistry

| Qualifier | Qualifier Description                                    |
|-----------|--|
| U         | Indicates the analyte was analyzed for but not detected. |

## Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |
|----------------|---|
| ▫              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |
| %R             | Percent Recovery  |
| CFL            | Contains Free Liquid  |
| CFU            | Colony Forming Unit   |
| CNF            | Contains No Free Liquid   |
| DER            | Duplicate Error Ratio (normalized absolute difference)  |
| Dil Fac        | Dilution Factor   |
| DL             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MCL            | EPA recommended "Maximum Contaminant Level"   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| MDL            | Method Detection Limit  |
| ML             | Minimum Level (Dioxin)  |
| MPN            | Most Probable Number  |
| MQL            | Method Quantitation Limit   |
| NC             | Not Calculated  |
| ND             | Not Detected at the reporting limit (or MDL or EDL if shown)  |
| NEG            | Negative / Absent   |
| POS            | Positive / Present  |
| PQL            | Practical Quantitation Limit  |
| PRES           | Presumptive   |
| QC             | Quality Control   |
| RER            | Relative Error Ratio (Radiochemistry)   |
| RL             | Reporting Limit or Requested Limit (Radiochemistry)   |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                        |
| TEF            | Toxicity Equivalent Factor (Dioxin)   |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)   |
| TNTC           | Too Numerous To Count   |

# Case Narrative

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

---

**Job ID: 240-183128-1**

---

**Laboratory: Eurofins Canton**

---

**Narrative**

**Job Narrative  
240-183128-1**

**Receipt**

The samples were received on 4/7/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8°C and 2.6°C

**Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

**General Chemistry**

Method 9056A\_28D: The following sample was diluted due to the nature of the sample matrix: MW17-07 (240-183128-5). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Method Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

| Method   | Method Description                                 | Protocol | Laboratory |
|----------|--|----------|------------|
| 6010B    | Metals (ICP)                                       | SW846    | EET CAN    |
| 6020     | Metals (ICP/MS)                                    | SW846    | EET CAN    |
| 7470A    | Mercury (CVAA)                                     | SW846    | EET CAN    |
| 9056A    | Anions, Ion Chromatography                         | SW846    | EET CAN    |
| SM 2540C | Solids, Total Dissolved (TDS)                      | SM       | EET CAN    |
| 3005A    | Preparation, Total Recoverable or Dissolved Metals | SW846    | EET CAN    |
| 7470A    | Preparation, Mercury                               | SW846    | EET CAN    |

**Protocol References:**

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

# Sample Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

| Lab Sample ID | Client Sample ID | Matrix       | Collected      | Received       |
|---------------|------------------|--------------|----------------|----------------|
| 240-183128-1  | MW-16-01         | Ground Water | 04/03/23 09:05 | 04/07/23 08:00 |
| 240-183128-2  | MW-16-02         | Ground Water | 04/03/23 10:25 | 04/07/23 08:00 |
| 240-183128-3  | MW-16-03         | Ground Water | 04/03/23 11:50 | 04/07/23 08:00 |
| 240-183128-4  | MW17-06          | Water        | 04/03/23 13:20 | 04/07/23 08:00 |
| 240-183128-5  | MW17-07          | Water        | 04/03/23 14:25 | 04/07/23 08:00 |
| 240-183128-6  | DUP-01           | Ground Water | 04/03/23 00:00 | 04/07/23 08:00 |

1

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9

10

11

12

13

# Detection Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Client Sample ID: MW-16-01

## Lab Sample ID: 240-183128-1

| Analyte                | Result | Qualifier | RL    | MDL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|-------|------|---------|---|----------|----------------------|
| Boron                  | 1000   |           | 100   | 100   | ug/L | 1       |   | 6010B    | Total<br>Recoverable |
| Arsenic                | 10     |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Barium                 | 110    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Calcium                | 150000 |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Iron                   | 22000  |           | 100   | 100   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Lithium                | 66     |           | 8.0   | 8.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Magnesium              | 60000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Manganese              | 260    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Potassium              | 8100   |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Sodium                 | 51000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Chloride               | 47     |           | 1.0   | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.62   |           | 0.050 | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 440    |           | 5.0   | 5.0   | mg/L | 5       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 950    |           | 10    | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-16-02

## Lab Sample ID: 240-183128-2

| Analyte                | Result | Qualifier | RL    | MDL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|-------|------|---------|---|----------|----------------------|
| Boron                  | 460    |           | 100   | 100   | ug/L | 1       |   | 6010B    | Total<br>Recoverable |
| Barium                 | 120    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Calcium                | 170000 |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Iron                   | 1100   |           | 100   | 100   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Lithium                | 20     |           | 8.0   | 8.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Magnesium              | 46000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Manganese              | 620    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Potassium              | 5200   |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Sodium                 | 51000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Chloride               | 52     |           | 1.0   | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.28   |           | 0.050 | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 430    |           | 5.0   | 5.0   | mg/L | 5       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 990    |           | 10    | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-16-03

## Lab Sample ID: 240-183128-3

| Analyte | Result | Qualifier | RL  | MDL | Unit | Dil Fac | D | Method | Prep Type            |
|---------|--------|-----------|-----|-----|------|---------|---|--------|----------------------|
| Boron   | 210    |           | 100 | 100 | ug/L | 1       |   | 6010B  | Total<br>Recoverable |

This Detection Summary does not include radiochemical test results.

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## Detection Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

### Client Sample ID: MW-16-03 (Continued)

### Lab Sample ID: 240-183128-3

| Analyte                | Result | Qualifier | RL    | MDL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|-------|------|---------|---|----------|----------------------|
| Barium                 | 32     |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Calcium                | 65000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Iron                   | 600    |           | 100   | 100   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Lithium                | 8.8    |           | 8.0   | 8.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Magnesium              | 26000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Manganese              | 480    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Potassium              | 2300   |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Sodium                 | 34000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Chloride               | 45     |           | 1.0   | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.32   |           | 0.050 | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 300    |           | 10    | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

### Client Sample ID: MW17-06

### Lab Sample ID: 240-183128-4

| Analyte                | Result | Qualifier | RL    | MDL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|-------|------|---------|---|----------|----------------------|
| Boron                  | 460    |           | 100   | 100   | ug/L | 1       |   | 6010B    | Total<br>Recoverable |
| Arsenic                | 16     |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Barium                 | 130    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Calcium                | 280000 |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Cobalt                 | 1.1    |           | 1.0   | 1.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Iron                   | 16000  |           | 100   | 100   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Lithium                | 23     |           | 8.0   | 8.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Magnesium              | 150000 |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Manganese              | 330    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Molybdenum             | 8.2    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Potassium              | 2400   |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Sodium                 | 290000 |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Chloride               | 700    |           | 10    | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Fluoride               | 0.31   |           | 0.050 | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 500    |           | 10    | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 2100   |           | 40    | 40    | mg/L | 1       |   | SM 2540C | Total/NA             |

### Client Sample ID: MW17-07

### Lab Sample ID: 240-183128-5

| Analyte | Result | Qualifier | RL  | MDL | Unit | Dil Fac | D | Method | Prep Type            |
|---------|--------|-----------|-----|-----|------|---------|---|--------|----------------------|
| Boron   | 630    |           | 100 | 100 | ug/L | 1       |   | 6010B  | Total<br>Recoverable |

This Detection Summary does not include radiochemical test results.

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# Detection Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Client Sample ID: MW17-07 (Continued)

## Lab Sample ID: 240-183128-5

| Analyte                | Result  | Qualifier | RL   | MDL  | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|---------|-----------|------|------|------|---------|---|----------|----------------------|
| Arsenic                | 17      |           | 5.0  | 5.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Barium                 | 29      |           | 5.0  | 5.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Calcium                | 410000  |           | 1000 | 1000 | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Cobalt                 | 6.9     |           | 1.0  | 1.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Iron                   | 16000   |           | 100  | 100  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Lithium                | 28      |           | 8.0  | 8.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Magnesium              | 180000  |           | 1000 | 1000 | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Manganese              | 890     |           | 5.0  | 5.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Molybdenum             | 13      |           | 5.0  | 5.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Nickel                 | 2.0     |           | 2.0  | 2.0  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Potassium              | 1800    |           | 1000 | 1000 | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Sodium                 | 1500000 |           | 1000 | 1000 | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Chloride               | 2200    |           | 25   | 25   | mg/L | 25      |   | 9056A    | Total/NA             |
| Sulfate                | 1300    |           | 25   | 25   | mg/L | 25      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 5700    |           | 50   | 50   | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: DUP-01

## Lab Sample ID: 240-183128-6

| Analyte                | Result | Qualifier | RL    | MDL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|-------|------|---------|---|----------|----------------------|
| Boron                  | 1000   |           | 100   | 100   | ug/L | 1       |   | 6010B    | Total<br>Recoverable |
| Arsenic                | 11     |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Barium                 | 100    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Calcium                | 150000 |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Iron                   | 23000  |           | 100   | 100   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Lithium                | 65     |           | 8.0   | 8.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Magnesium              | 59000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Manganese              | 270    |           | 5.0   | 5.0   | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Potassium              | 7900   |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Sodium                 | 51000  |           | 1000  | 1000  | ug/L | 1       |   | 6020     | Total<br>Recoverable |
| Chloride               | 48     |           | 1.0   | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.64   |           | 0.050 | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 430    |           | 5.0   | 5.0   | mg/L | 5       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 950    |           | 10    | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-183128-1**

Date Collected: 04/03/23 09:05

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 6010B - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 1000   |           | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/12/23 00:11 | 1       |

**Method: SW846 6020 - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Arsenic    | 10     |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Barium     | 110    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Beryllium  | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Cadmium    | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Calcium    | 150000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Chromium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Copper     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Iron       | 22000  |           | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Lead       | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Lithium    | 66     |           | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Magnesium  | 60000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Manganese  | 260    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Nickel     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Potassium  | 8100   |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Selenium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Silver     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Sodium     | 51000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Thallium   | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Vanadium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |
| Zinc       | 20     | U         | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 18:05 | 1       |

**Method: SW846 7470A - Mercury (CVAA)**

| Analyte | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20   | U         | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:28 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 47     |           | 1.0   | 1.0   | mg/L |   |          | 04/20/23 23:59 | 1       |
| Fluoride (SW846 9056A)            | 0.62   |           | 0.050 | 0.050 | mg/L |   |          | 04/20/23 23:59 | 1       |
| Sulfate (SW846 9056A)             | 440    |           | 5.0   | 5.0   | mg/L |   |          | 04/21/23 00:21 | 5       |
| Total Dissolved Solids (SM 2540C) | 950    |           | 10    | 10    | mg/L |   |          | 04/07/23 11:43 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-183128-2**

Date Collected: 04/03/23 10:25

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 6010B - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 460    |           | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/12/23 00:15 | 1       |

**Method: SW846 6020 - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Arsenic    | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Barium     | 120    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Beryllium  | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Cadmium    | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Calcium    | 170000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Chromium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Copper     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Iron       | 1100   |           | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Lead       | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Lithium    | 20     |           | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Magnesium  | 46000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Manganese  | 620    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Nickel     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Potassium  | 5200   |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Selenium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Silver     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Sodium     | 51000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Thallium   | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Vanadium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |
| Zinc       | 20     | U         | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 18:08 | 1       |

**Method: SW846 7470A - Mercury (CVAA)**

| Analyte | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20   | U         | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:30 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 52     |           | 1.0   | 1.0   | mg/L |   |          | 04/21/23 00:43 | 1       |
| Fluoride (SW846 9056A)            | 0.28   |           | 0.050 | 0.050 | mg/L |   |          | 04/21/23 00:43 | 1       |
| Sulfate (SW846 9056A)             | 430    |           | 5.0   | 5.0   | mg/L |   |          | 04/21/23 01:04 | 5       |
| Total Dissolved Solids (SM 2540C) | 990    |           | 10    | 10    | mg/L |   |          | 04/07/23 11:43 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-183128-3**

Date Collected: 04/03/23 11:50

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 6010B - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 210    |           | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/12/23 00:20 | 1       |

**Method: SW846 6020 - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Arsenic    | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Barium     | 32     |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Beryllium  | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Cadmium    | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Calcium    | 65000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Chromium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Copper     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Iron       | 600    |           | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Lead       | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Lithium    | 8.8    |           | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Magnesium  | 26000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Manganese  | 480    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Nickel     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Potassium  | 2300   |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Selenium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Silver     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Sodium     | 34000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Thallium   | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Vanadium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |
| Zinc       | 20     | U         | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 18:17 | 1       |

**Method: SW846 7470A - Mercury (CVAA)**

| Analyte | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20   | U         | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:32 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 45     |           | 1.0   | 1.0   | mg/L |   |          | 04/21/23 01:26 | 1       |
| Fluoride (SW846 9056A)            | 0.32   |           | 0.050 | 0.050 | mg/L |   |          | 04/21/23 01:26 | 1       |
| Sulfate (SW846 9056A)             | 1.0    | U         | 1.0   | 1.0   | mg/L |   |          | 04/21/23 01:26 | 1       |
| Total Dissolved Solids (SM 2540C) | 300    |           | 10    | 10    | mg/L |   |          | 04/07/23 11:43 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW17-06**

**Lab Sample ID: 240-183128-4**

Date Collected: 04/03/23 13:20

Matrix: Water

Date Received: 04/07/23 08:00

**Method: SW846 6010B - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 460    |           | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/12/23 00:24 | 1       |

**Method: SW846 6020 - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Arsenic    | 16     |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Barium     | 130    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Beryllium  | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Cadmium    | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Calcium    | 280000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Chromium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Cobalt     | 1.1    |           | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Copper     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Iron       | 16000  |           | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Lead       | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Lithium    | 23     |           | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Magnesium  | 150000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Manganese  | 330    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Molybdenum | 8.2    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Nickel     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Potassium  | 2400   |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Selenium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Silver     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Sodium     | 290000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Thallium   | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Vanadium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |
| Zinc       | 20     | U         | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 18:20 | 1       |

**Method: SW846 7470A - Mercury (CVAA)**

| Analyte | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20   | U         | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:34 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 700    |           | 10    | 10    | mg/L |   |          | 04/21/23 03:36 | 10      |
| Fluoride (SW846 9056A)            | 0.31   |           | 0.050 | 0.050 | mg/L |   |          | 04/21/23 02:31 | 1       |
| Sulfate (SW846 9056A)             | 500    |           | 10    | 10    | mg/L |   |          | 04/21/23 03:36 | 10      |
| Total Dissolved Solids (SM 2540C) | 2100   |           | 40    | 40    | mg/L |   |          | 04/07/23 11:43 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW17-07**

**Lab Sample ID: 240-183128-5**

Date Collected: 04/03/23 14:25

Matrix: Water

Date Received: 04/07/23 08:00

**Method: SW846 6010B - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 630    |           | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/12/23 00:37 | 1       |

**Method: SW846 6020 - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result  | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|---------|-----------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0     | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Arsenic    | 17      |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Barium     | 29      |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Beryllium  | 1.0     | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Cadmium    | 1.0     | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Calcium    | 410000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Chromium   | 5.0     | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Cobalt     | 6.9     |           | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Copper     | 2.0     | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Iron       | 16000   |           | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Lead       | 1.0     | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Lithium    | 28      |           | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Magnesium  | 180000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Manganese  | 890     |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Molybdenum | 13      |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Nickel     | 2.0     |           | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Potassium  | 1800    |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Selenium   | 5.0     | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Silver     | 1.0     | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Sodium     | 1500000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Thallium   | 1.0     | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Vanadium   | 5.0     | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |
| Zinc       | 20      | U         | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 18:23 | 1       |

**Method: SW846 7470A - Mercury (CVAA)**

| Analyte | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20   | U         | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:41 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL   | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|------|------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 2200   |           | 25   | 25   | mg/L |   |          | 04/21/23 04:19 | 25      |
| Fluoride (SW846 9056A)            | 0.25   | U         | 0.25 | 0.25 | mg/L |   |          | 04/21/23 03:58 | 5       |
| Sulfate (SW846 9056A)             | 1300   |           | 25   | 25   | mg/L |   |          | 04/21/23 04:19 | 25      |
| Total Dissolved Solids (SM 2540C) | 5700   |           | 50   | 50   | mg/L |   |          | 04/07/23 11:43 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-183128-6**

Date Collected: 04/03/23 00:00

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 6010B - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 1000   |           | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/12/23 00:41 | 1       |

**Method: SW846 6020 - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Arsenic    | 11     |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Barium     | 100    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Beryllium  | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Cadmium    | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Calcium    | 150000 |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Chromium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Copper     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Iron       | 23000  |           | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Lead       | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Lithium    | 65     |           | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Magnesium  | 59000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Manganese  | 270    |           | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Nickel     | 2.0    | U         | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Potassium  | 7900   |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Selenium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Silver     | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Sodium     | 51000  |           | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Thallium   | 1.0    | U         | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Vanadium   | 5.0    | U         | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |
| Zinc       | 20     | U         | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 18:26 | 1       |

**Method: SW846 7470A - Mercury (CVAA)**

| Analyte | Result | Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20   | U         | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:43 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 48     |           | 1.0   | 1.0   | mg/L |   |          | 04/21/23 04:41 | 1       |
| Fluoride (SW846 9056A)            | 0.64   |           | 0.050 | 0.050 | mg/L |   |          | 04/21/23 04:41 | 1       |
| Sulfate (SW846 9056A)             | 430    |           | 5.0   | 5.0   | mg/L |   |          | 04/21/23 05:03 | 5       |
| Total Dissolved Solids (SM 2540C) | 950    |           | 10    | 10    | mg/L |   |          | 04/07/23 11:43 | 1       |

# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-568717/1-A  
Matrix: Water  
Analysis Batch: 568985

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 568717

| Analyte | MB Result | MB Qualifier | RL  | MDL | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|-----------|--------------|-----|-----|------|---|----------------|----------------|---------|
| Boron   | 100       | U            | 100 | 100 | ug/L |   | 04/10/23 14:00 | 04/11/23 22:31 | 1       |

Lab Sample ID: LCS 240-568717/2-A  
Matrix: Water  
Analysis Batch: 568985

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 568717

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|-------------|------------|---------------|------|---|------|-------------|
| Boron   | 1000        | 1060       |               | ug/L |   | 106  | 80 - 120    |

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-568717/1-A  
Matrix: Water  
Analysis Batch: 569003

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 568717

| Analyte    | MB Result | MB Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|------|------|------|---|----------------|----------------|---------|
| Antimony   | 2.0       | U            | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Arsenic    | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Barium     | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Beryllium  | 1.0       | U            | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Cadmium    | 1.0       | U            | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Calcium    | 1000      | U            | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Chromium   | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Cobalt     | 1.0       | U            | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Copper     | 2.0       | U            | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Iron       | 100       | U            | 100  | 100  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Lead       | 1.0       | U            | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Lithium    | 8.0       | U            | 8.0  | 8.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Magnesium  | 1000      | U            | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Manganese  | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Molybdenum | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Nickel     | 2.0       | U            | 2.0  | 2.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Potassium  | 1000      | U            | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Selenium   | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Silver     | 1.0       | U            | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Sodium     | 1000      | U            | 1000 | 1000 | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Thallium   | 1.0       | U            | 1.0  | 1.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Vanadium   | 5.0       | U            | 5.0  | 5.0  | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |
| Zinc       | 20        | U            | 20   | 20   | ug/L |   | 04/10/23 14:00 | 04/11/23 16:56 | 1       |

Lab Sample ID: LCS 240-568717/3-A  
Matrix: Water  
Analysis Batch: 569003

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 568717

| Analyte   | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|-----------|-------------|------------|---------------|------|---|------|-------------|
| Antimony  | 100         | 101        |               | ug/L |   | 101  | 80 - 120    |
| Arsenic   | 1000        | 941        |               | ug/L |   | 94   | 80 - 120    |
| Barium    | 1000        | 964        |               | ug/L |   | 96   | 80 - 120    |
| Beryllium | 500         | 464        |               | ug/L |   | 93   | 80 - 120    |



# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 240-568717/3-A  
Matrix: Water  
Analysis Batch: 569003

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 568717

| Analyte    | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------|-------------|------------|---------------|------|---|------|-------------|
| Cadmium    | 500         | 482        |               | ug/L |   | 96   | 80 - 120    |
| Calcium    | 25000       | 23300      |               | ug/L |   | 93   | 80 - 120    |
| Chromium   | 500         | 486        |               | ug/L |   | 97   | 80 - 120    |
| Cobalt     | 500         | 481        |               | ug/L |   | 96   | 80 - 120    |
| Copper     | 500         | 476        |               | ug/L |   | 95   | 80 - 120    |
| Iron       | 5000        | 4560       |               | ug/L |   | 91   | 80 - 120    |
| Lead       | 500         | 491        |               | ug/L |   | 98   | 80 - 120    |
| Lithium    | 500         | 495        |               | ug/L |   | 99   | 80 - 120    |
| Magnesium  | 25000       | 23700      |               | ug/L |   | 95   | 80 - 120    |
| Manganese  | 500         | 491        |               | ug/L |   | 98   | 80 - 120    |
| Molybdenum | 500         | 480        |               | ug/L |   | 96   | 80 - 120    |
| Nickel     | 500         | 477        |               | ug/L |   | 95   | 80 - 120    |
| Potassium  | 25000       | 23600      |               | ug/L |   | 94   | 80 - 120    |
| Selenium   | 1000        | 941        |               | ug/L |   | 94   | 80 - 120    |
| Silver     | 100         | 96.3       |               | ug/L |   | 96   | 80 - 120    |
| Sodium     | 25000       | 23700      |               | ug/L |   | 95   | 80 - 120    |
| Thallium   | 1000        | 967        |               | ug/L |   | 97   | 80 - 120    |
| Vanadium   | 500         | 484        |               | ug/L |   | 97   | 80 - 120    |
| Zinc       | 500         | 461        |               | ug/L |   | 92   | 80 - 120    |

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-568722/1-A  
Matrix: Water  
Analysis Batch: 569031

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 568722

| Analyte | MB Result | MB Qualifier | RL   | MDL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|-----------|--------------|------|------|------|---|----------------|----------------|---------|
| Mercury | 0.20      | U            | 0.20 | 0.20 | ug/L |   | 04/10/23 14:00 | 04/11/23 15:43 | 1       |

Lab Sample ID: LCS 240-568722/2-A  
Matrix: Water  
Analysis Batch: 569031

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 568722

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|-------------|------------|---------------|------|---|------|-------------|
| Mercury | 5.00        | 5.15       |               | ug/L |   | 103  | 80 - 120    |

## Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-569994/3  
Matrix: Water  
Analysis Batch: 569994

Client Sample ID: Method Blank  
Prep Type: Total/NA

| Analyte  | MB Result | MB Qualifier | RL    | MDL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|----------|-----------|--------------|-------|-------|------|---|----------|----------------|---------|
| Chloride | 1.0       | U            | 1.0   | 1.0   | mg/L |   |          | 04/20/23 23:16 | 1       |
| Fluoride | 0.050     | U            | 0.050 | 0.050 | mg/L |   |          | 04/20/23 23:16 | 1       |
| Sulfate  | 1.0       | U            | 1.0   | 1.0   | mg/L |   |          | 04/20/23 23:16 | 1       |

# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Method: 9056A - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 240-569994/4**  
**Matrix: Water**  
**Analysis Batch: 569994**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte  | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|----------|-------------|------------|---------------|------|---|------|-------------|
| Chloride | 50.0        | 47.4       |               | mg/L |   | 95   | 90 - 110    |
| Fluoride | 2.50        | 2.41       |               | mg/L |   | 97   | 90 - 110    |
| Sulfate  | 50.0        | 48.3       |               | mg/L |   | 97   | 90 - 110    |

**Lab Sample ID: 240-183128-3 MS**  
**Matrix: Ground Water**  
**Analysis Batch: 569994**

**Client Sample ID: MW-16-03**  
**Prep Type: Total/NA**

| Analyte  | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|----------|---------------|------------------|-------------|-----------|--------------|------|---|------|-------------|
| Chloride | 45            |                  | 50.0        | 96.9      |              | mg/L |   | 103  | 80 - 120    |
| Fluoride | 0.32          |                  | 2.50        | 3.15      |              | mg/L |   | 113  | 80 - 120    |
| Sulfate  | 1.0           | U                | 50.0        | 54.5      |              | mg/L |   | 109  | 80 - 120    |

**Lab Sample ID: 240-183128-3 MSD**  
**Matrix: Ground Water**  
**Analysis Batch: 569994**

**Client Sample ID: MW-16-03**  
**Prep Type: Total/NA**

| Analyte  | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|----------|---------------|------------------|-------------|------------|---------------|------|---|------|-------------|-----|-----------|
| Chloride | 45            |                  | 50.0        | 97.2       |               | mg/L |   | 104  | 80 - 120    | 0   | 15        |
| Fluoride | 0.32          |                  | 2.50        | 3.16       |               | mg/L |   | 114  | 80 - 120    | 0   | 15        |
| Sulfate  | 1.0           | U                | 50.0        | 54.8       |               | mg/L |   | 110  | 80 - 120    | 0   | 15        |

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 240-568486/1**  
**Matrix: Water**  
**Analysis Batch: 568486**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte                | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------|-----------|--------------|----|-----|------|---|----------|----------------|---------|
| Total Dissolved Solids | 10        | U            | 10 | 10  | mg/L |   |          | 04/07/23 11:43 | 1       |

**Lab Sample ID: LCS 240-568486/2**  
**Matrix: Water**  
**Analysis Batch: 568486**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte                | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------------------|-------------|------------|---------------|------|---|------|-------------|
| Total Dissolved Solids | 580         | 537        |               | mg/L |   | 93   | 80 - 120    |

**Lab Sample ID: 240-183128-6 DU**  
**Matrix: Ground Water**  
**Analysis Batch: 568486**

**Client Sample ID: DUP-01**  
**Prep Type: Total/NA**

| Analyte                | Sample Result | Sample Qualifier | DU Result | DU Qualifier | Unit | D | RPD | RPD Limit |
|------------------------|---------------|------------------|-----------|--------------|------|---|-----|-----------|
| Total Dissolved Solids | 950           |                  | 955       |              | mg/L |   | 0.3 | 20        |

# QC Association Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Metals

### Prep Batch: 568717

| Lab Sample ID      | Client Sample ID   | Prep Type         | Matrix       | Method | Prep Batch |
|--------------------|--------------------|-------------------|--------------|--------|------------|
| 240-183128-1       | MW-16-01           | Total Recoverable | Ground Water | 3005A  |            |
| 240-183128-2       | MW-16-02           | Total Recoverable | Ground Water | 3005A  |            |
| 240-183128-3       | MW-16-03           | Total Recoverable | Ground Water | 3005A  |            |
| 240-183128-4       | MW17-06            | Total Recoverable | Water        | 3005A  |            |
| 240-183128-5       | MW17-07            | Total Recoverable | Water        | 3005A  |            |
| 240-183128-6       | DUP-01             | Total Recoverable | Ground Water | 3005A  |            |
| MB 240-568717/1-A  | Method Blank       | Total Recoverable | Water        | 3005A  |            |
| LCS 240-568717/2-A | Lab Control Sample | Total Recoverable | Water        | 3005A  |            |
| LCS 240-568717/3-A | Lab Control Sample | Total Recoverable | Water        | 3005A  |            |

### Prep Batch: 568722

| Lab Sample ID      | Client Sample ID   | Prep Type | Matrix       | Method | Prep Batch |
|--------------------|--------------------|-----------|--------------|--------|------------|
| 240-183128-1       | MW-16-01           | Total/NA  | Ground Water | 7470A  |            |
| 240-183128-2       | MW-16-02           | Total/NA  | Ground Water | 7470A  |            |
| 240-183128-3       | MW-16-03           | Total/NA  | Ground Water | 7470A  |            |
| 240-183128-4       | MW17-06            | Total/NA  | Water        | 7470A  |            |
| 240-183128-5       | MW17-07            | Total/NA  | Water        | 7470A  |            |
| 240-183128-6       | DUP-01             | Total/NA  | Ground Water | 7470A  |            |
| MB 240-568722/1-A  | Method Blank       | Total/NA  | Water        | 7470A  |            |
| LCS 240-568722/2-A | Lab Control Sample | Total/NA  | Water        | 7470A  |            |

### Analysis Batch: 568985

| Lab Sample ID      | Client Sample ID   | Prep Type         | Matrix       | Method | Prep Batch |
|--------------------|--------------------|-------------------|--------------|--------|------------|
| 240-183128-1       | MW-16-01           | Total Recoverable | Ground Water | 6010B  | 568717     |
| 240-183128-2       | MW-16-02           | Total Recoverable | Ground Water | 6010B  | 568717     |
| 240-183128-3       | MW-16-03           | Total Recoverable | Ground Water | 6010B  | 568717     |
| 240-183128-4       | MW17-06            | Total Recoverable | Water        | 6010B  | 568717     |
| 240-183128-5       | MW17-07            | Total Recoverable | Water        | 6010B  | 568717     |
| 240-183128-6       | DUP-01             | Total Recoverable | Ground Water | 6010B  | 568717     |
| MB 240-568717/1-A  | Method Blank       | Total Recoverable | Water        | 6010B  | 568717     |
| LCS 240-568717/2-A | Lab Control Sample | Total Recoverable | Water        | 6010B  | 568717     |

### Analysis Batch: 569003

| Lab Sample ID      | Client Sample ID   | Prep Type         | Matrix       | Method | Prep Batch |
|--------------------|--------------------|-------------------|--------------|--------|------------|
| 240-183128-1       | MW-16-01           | Total Recoverable | Ground Water | 6020   | 568717     |
| 240-183128-2       | MW-16-02           | Total Recoverable | Ground Water | 6020   | 568717     |
| 240-183128-3       | MW-16-03           | Total Recoverable | Ground Water | 6020   | 568717     |
| 240-183128-4       | MW17-06            | Total Recoverable | Water        | 6020   | 568717     |
| 240-183128-5       | MW17-07            | Total Recoverable | Water        | 6020   | 568717     |
| 240-183128-6       | DUP-01             | Total Recoverable | Ground Water | 6020   | 568717     |
| MB 240-568717/1-A  | Method Blank       | Total Recoverable | Water        | 6020   | 568717     |
| LCS 240-568717/3-A | Lab Control Sample | Total Recoverable | Water        | 6020   | 568717     |

### Analysis Batch: 569031

| Lab Sample ID | Client Sample ID | Prep Type | Matrix       | Method | Prep Batch |
|---------------|------------------|-----------|--------------|--------|------------|
| 240-183128-1  | MW-16-01         | Total/NA  | Ground Water | 7470A  | 568722     |
| 240-183128-2  | MW-16-02         | Total/NA  | Ground Water | 7470A  | 568722     |
| 240-183128-3  | MW-16-03         | Total/NA  | Ground Water | 7470A  | 568722     |
| 240-183128-4  | MW17-06          | Total/NA  | Water        | 7470A  | 568722     |
| 240-183128-5  | MW17-07          | Total/NA  | Water        | 7470A  | 568722     |
| 240-183128-6  | DUP-01           | Total/NA  | Ground Water | 7470A  | 568722     |

# QC Association Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

## Metals (Continued)

### Analysis Batch: 569031 (Continued)

| Lab Sample ID      | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|--------------------|--------------------|-----------|--------|--------|------------|
| MB 240-568722/1-A  | Method Blank       | Total/NA  | Water  | 7470A  | 568722     |
| LCS 240-568722/2-A | Lab Control Sample | Total/NA  | Water  | 7470A  | 568722     |

## General Chemistry

### Analysis Batch: 568486

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix       | Method   | Prep Batch |
|------------------|--------------------|-----------|--------------|----------|------------|
| 240-183128-1     | MW-16-01           | Total/NA  | Ground Water | SM 2540C |            |
| 240-183128-2     | MW-16-02           | Total/NA  | Ground Water | SM 2540C |            |
| 240-183128-3     | MW-16-03           | Total/NA  | Ground Water | SM 2540C |            |
| 240-183128-4     | MW17-06            | Total/NA  | Water        | SM 2540C |            |
| 240-183128-5     | MW17-07            | Total/NA  | Water        | SM 2540C |            |
| 240-183128-6     | DUP-01             | Total/NA  | Ground Water | SM 2540C |            |
| MB 240-568486/1  | Method Blank       | Total/NA  | Water        | SM 2540C |            |
| LCS 240-568486/2 | Lab Control Sample | Total/NA  | Water        | SM 2540C |            |
| 240-183128-6 DU  | DUP-01             | Total/NA  | Ground Water | SM 2540C |            |

### Analysis Batch: 569994

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix       | Method | Prep Batch |
|------------------|--------------------|-----------|--------------|--------|------------|
| 240-183128-1     | MW-16-01           | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-1     | MW-16-01           | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-2     | MW-16-02           | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-2     | MW-16-02           | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-3     | MW-16-03           | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-4     | MW17-06            | Total/NA  | Water        | 9056A  |            |
| 240-183128-4     | MW17-06            | Total/NA  | Water        | 9056A  |            |
| 240-183128-5     | MW17-07            | Total/NA  | Water        | 9056A  |            |
| 240-183128-5     | MW17-07            | Total/NA  | Water        | 9056A  |            |
| 240-183128-6     | DUP-01             | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-6     | DUP-01             | Total/NA  | Ground Water | 9056A  |            |
| MB 240-569994/3  | Method Blank       | Total/NA  | Water        | 9056A  |            |
| LCS 240-569994/4 | Lab Control Sample | Total/NA  | Water        | 9056A  |            |
| 240-183128-3 MS  | MW-16-03           | Total/NA  | Ground Water | 9056A  |            |
| 240-183128-3 MSD | MW-16-03           | Total/NA  | Ground Water | 9056A  |            |

# Lab Chronicle

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-183128-1**

**Date Collected: 04/03/23 09:05**

**Matrix: Ground Water**

**Date Received: 04/07/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6010B        |     | 1               | 568985       | AJC           | EET CAN | 04/12/23 00:11       |
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6020         |     | 1               | 569003       | RKT           | EET CAN | 04/11/23 18:05       |
| Total/NA          | Prep       | 7470A        |     |                 | 568722       | MRL           | EET CAN | 04/10/23 14:00       |
| Total/NA          | Analysis   | 7470A        |     | 1               | 569031       | DSH           | EET CAN | 04/11/23 16:28       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 569994       | JMB           | EET CAN | 04/20/23 23:59       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 569994       | JMB           | EET CAN | 04/21/23 00:21       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 568486       | MS            | EET CAN | 04/07/23 11:43       |

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-183128-2**

**Date Collected: 04/03/23 10:25**

**Matrix: Ground Water**

**Date Received: 04/07/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6010B        |     | 1               | 568985       | AJC           | EET CAN | 04/12/23 00:15       |
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6020         |     | 1               | 569003       | RKT           | EET CAN | 04/11/23 18:08       |
| Total/NA          | Prep       | 7470A        |     |                 | 568722       | MRL           | EET CAN | 04/10/23 14:00       |
| Total/NA          | Analysis   | 7470A        |     | 1               | 569031       | DSH           | EET CAN | 04/11/23 16:30       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 569994       | JMB           | EET CAN | 04/21/23 00:43       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 569994       | JMB           | EET CAN | 04/21/23 01:04       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 568486       | MS            | EET CAN | 04/07/23 11:43       |

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-183128-3**

**Date Collected: 04/03/23 11:50**

**Matrix: Ground Water**

**Date Received: 04/07/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6010B        |     | 1               | 568985       | AJC           | EET CAN | 04/12/23 00:20       |
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6020         |     | 1               | 569003       | RKT           | EET CAN | 04/11/23 18:17       |
| Total/NA          | Prep       | 7470A        |     |                 | 568722       | MRL           | EET CAN | 04/10/23 14:00       |
| Total/NA          | Analysis   | 7470A        |     | 1               | 569031       | DSH           | EET CAN | 04/11/23 16:32       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 569994       | JMB           | EET CAN | 04/21/23 01:26       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 568486       | MS            | EET CAN | 04/07/23 11:43       |

# Lab Chronicle

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

**Client Sample ID: MW17-06**

**Lab Sample ID: 240-183128-4**

Date Collected: 04/03/23 13:20

Matrix: Water

Date Received: 04/07/23 08:00

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6010B        |     | 1               | 568985       | AJC           | EET CAN | 04/12/23 00:24       |
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6020         |     | 1               | 569003       | RKT           | EET CAN | 04/11/23 18:20       |
| Total/NA          | Prep       | 7470A        |     |                 | 568722       | MRL           | EET CAN | 04/10/23 14:00       |
| Total/NA          | Analysis   | 7470A        |     | 1               | 569031       | DSH           | EET CAN | 04/11/23 16:34       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 569994       | JMB           | EET CAN | 04/21/23 02:31       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 569994       | JMB           | EET CAN | 04/21/23 03:36       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 568486       | MS            | EET CAN | 04/07/23 11:43       |

**Client Sample ID: MW17-07**

**Lab Sample ID: 240-183128-5**

Date Collected: 04/03/23 14:25

Matrix: Water

Date Received: 04/07/23 08:00

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6010B        |     | 1               | 568985       | AJC           | EET CAN | 04/12/23 00:37       |
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6020         |     | 1               | 569003       | RKT           | EET CAN | 04/11/23 18:23       |
| Total/NA          | Prep       | 7470A        |     |                 | 568722       | MRL           | EET CAN | 04/10/23 14:00       |
| Total/NA          | Analysis   | 7470A        |     | 1               | 569031       | DSH           | EET CAN | 04/11/23 16:41       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 569994       | JMB           | EET CAN | 04/21/23 03:58       |
| Total/NA          | Analysis   | 9056A        |     | 25              | 569994       | JMB           | EET CAN | 04/21/23 04:19       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 568486       | MS            | EET CAN | 04/07/23 11:43       |

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-183128-6**

Date Collected: 04/03/23 00:00

Matrix: Ground Water

Date Received: 04/07/23 08:00

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6010B        |     | 1               | 568985       | AJC           | EET CAN | 04/12/23 00:41       |
| Total Recoverable | Prep       | 3005A        |     |                 | 568717       | MRL           | EET CAN | 04/10/23 14:00       |
| Total Recoverable | Analysis   | 6020         |     | 1               | 569003       | RKT           | EET CAN | 04/11/23 18:26       |
| Total/NA          | Prep       | 7470A        |     |                 | 568722       | MRL           | EET CAN | 04/10/23 14:00       |
| Total/NA          | Analysis   | 7470A        |     | 1               | 569031       | DSH           | EET CAN | 04/11/23 16:43       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 569994       | JMB           | EET CAN | 04/21/23 04:41       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 569994       | JMB           | EET CAN | 04/21/23 05:03       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 568486       | MS            | EET CAN | 04/07/23 11:43       |

**Laboratory References:**

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

## Accreditation/Certification Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-1

### Laboratory: Eurofins Canton

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

| Authority             | Program | Identification Number | Expiration Date |
|-----------------------|---------|-----------------------|-----------------|
| California            | State   | 2927                  | 02-27-23 *      |
| Connecticut           | State   | PH-0590               | 06-29-23        |
| Florida               | NELAP   | E87225                | 06-30-23        |
| Georgia               | State   | 4062                  | 02-28-24        |
| Illinois              | NELAP   | 200004                | 07-31-23        |
| Iowa                  | State   | 421                   | 06-01-23        |
| Kentucky (UST)        | State   | 112225                | 02-27-23 *      |
| Kentucky (WW)         | State   | KY98016               | 12-31-23        |
| Michigan              | State   | 9135                  | 02-27-23 *      |
| Minnesota             | NELAP   | 039-999-348           | 12-31-23        |
| Minnesota (Petrofund) | State   | 3506                  | 08-01-23        |
| New Jersey            | NELAP   | OH001                 | 06-30-23        |
| New York              | NELAP   | 10975                 | 04-01-24        |
| Ohio                  | State   | 8303                  | 02-27-24        |
| Ohio VAP              | State   | ORELAP 4062           | 02-27-24        |
| Oregon                | NELAP   | 4062                  | 02-28-24        |
| Pennsylvania          | NELAP   | 68-00340              | 08-31-23        |
| Texas                 | NELAP   | T104704517-22-17      | 08-31-23        |
| Virginia              | NELAP   | 460175                | 09-14-23        |
| West Virginia DEP     | State   | 210                   | 12-31-23        |

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.





# MICHIGAN 190 Chain of Custody Record

**Eurofins Canton**  
 180 S. Van Buren Avenue  
 Barberton, OH 44203  
 Phone: 330-497-9396 Fax: 330-497-0772



Environment Testing

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| <b>Client Information</b><br>Client Contact: Chris Scieszka<br>Company: TRC Environmental Corporation.<br>Address: 1540 Eisenhower Place, Ann Arbor, MI, 48108-7080<br>Phone: 313-971-7080 (Tel) 313-971-9022 (Fax)<br>Email: CScieszka@trccompanies.com<br>Project Name: CCR DTE River Rouge Power Plant<br>Site: Michigan |  | Lab PM: Brooks, Kris M<br>E-Mail: Kris.Brooks@et.eurofins.com<br>State of Origin: MI<br>Camer Tracking No(s):<br>Page 1 of 1<br>Job #  |  | COC No: 240-106117-37999.1<br>Preservation Codes:<br>A - HCL<br>B - NaOH<br>C - Zn Acetate<br>D - Nitric Acid<br>E - NaHSO4<br>F - MeOH<br>G - AmChlor<br>H - Ascorbic Acid<br>I - Ice<br>J - DI Water<br>K - EDTA<br>L - EDA<br>Other:<br>M - Hexane<br>N - None<br>O - AsNaO2<br>P - Na2O4S<br>Q - Na2SO3<br>R - Na2S2O3<br>S - H2SO4<br>T - TSP Dodecahydrate<br>U - Acetone<br>V - MCAA<br>W - pH 4-5<br>Y - Trizma<br>Z - other (specify) |  |
| Due Date Requested:<br>TAT Requested (days): <b>Standard</b><br>Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>PO #: 179837 - 2022<br>WO #: 413519.0005<br>Project #: 24016806<br>SSOW#  |  | <b>Analysis Requested</b>  |  | Total Number of Containers:  |  |
| Sample Identification<br>MW-16-01<br>MW-16-02<br>MW-16-03<br>MW-17-07<br>DUP-01   |  | Field Filtered Sample (Yes or No)<br>Form MS/MSD (Y or N)<br>9056A_28D - Chloride, Fluoride and Sulfate<br>2540C_Calcd - TDS<br>9315_Ra226, 9320_Ra228<br>6010B, 6020, 7470A |  | Special Instructions/Note:<br>240-183128 Chain of Custody  |  |
| Sample Date: 4-23<br>Sample Time: 0905<br>Sample Type (C=comp, G=grab): G<br>Matrix (W=water, B=soil, O=metal, T=tissue, A=air): Water  |  | Sample Date: 4-23<br>Sample Time: 1025<br>Sample Type (C=comp, G=grab): G<br>Matrix (W=water, B=soil, O=metal, T=tissue, A=air): Water                                       |  | Sample Date: 4-23<br>Sample Time: 1150<br>Sample Type (C=comp, G=grab): G<br>Matrix (W=water, B=soil, O=metal, T=tissue, A=air): Water   |  |
| Sample Date: 4-23<br>Sample Time: 1320<br>Sample Type (C=comp, G=grab): G<br>Matrix (W=water, B=soil, O=metal, T=tissue, A=air): Water  |  | Sample Date: 4-23<br>Sample Time: 1425<br>Sample Type (C=comp, G=grab): G<br>Matrix (W=water, B=soil, O=metal, T=tissue, A=air): Water                                       |  | Sample Date: -<br>Sample Time: -<br>Sample Type (C=comp, G=grab): G<br>Matrix (W=water, B=soil, O=metal, T=tissue, A=air): Water   |  |
| Possible Hazard Identification<br><input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological   |  | Deliverable Requested: I, II, III, IV, Other (specify) <b>TRC EDD</b>  |  | Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)<br><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months  |  |
| Empty Kit Relinquished by: <i>Andrew Winkler</i><br>Date/Time: 4-23 1700<br>Company: TRC  |  | Received by: <i>Tracy</i><br>Date/Time: 4/16/23 1130<br>Company: TRC   |  | Relinquished by: <i>Tracy</i><br>Date/Time: 4/6/23 1131<br>Company: TRC  |  |
| Relinquished by: <i>Tracy</i><br>Date/Time: 4/6/23 1131<br>Company: TRC   |  | Relinquished by: <i>Mindy Bl</i><br>Date/Time: 4-1-23 8:00<br>Company: TRC   |  | Cooler Temperature(s) and Other Remarks:   |  |





**Eurofins - Canton Sample Receipt Form/Narrative** Login # : \_\_\_\_\_  
**Barberton Facility**

Client TRC Site Name \_\_\_\_\_ Cooler unpacked by: Mandy  
Cooler Received on 4-7-23 Opened on 4-7-23  
FedEx: 1<sup>st</sup> Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other \_\_\_\_\_

**Receipt After-hours: Drop-off Date/Time** \_\_\_\_\_ **Storage Location** \_\_\_\_\_

Eurofins Cooler # 2211C Foam Box Client Cooler Box Other \_\_\_\_\_  
Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_  
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
IR GUN # 22 (CF +0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity \_\_\_\_\_ Yes No  
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA  
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No  
4. Did custody papers accompany the sample(s)? Yes No  
5. Were the custody papers relinquished & signed in the appropriate place? Yes No  
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No  
7. Did all bottles arrive in good condition (Unbroken)? Yes No  
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No  
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No  
10. Were correct bottle(s) used for the test(s) indicated? Yes No  
11. Sufficient quantity received to perform indicated analyses? Yes No  
12. Are these work share samples and all listed on the COC? Yes No  
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086 HC203864  
14. Were VOAs on the COC? Yes No  
15. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA  
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No  
17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
Concerning \_\_\_\_\_

Tests that are not checked for pH by Receiving:  
VOAs  
Oil and Grease  
TOC

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**  additional next page Samples processed by: \_\_\_\_\_

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**19. SAMPLE CONDITION**  
Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
Sample(s) \_\_\_\_\_ were received in a broken container.  
Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**  
Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Temperature readings: \_\_\_\_\_

| <u>Client Sample ID</u> | <u>Lab ID</u>  | <u>Container Type</u>            | <u>Container</u> |             | <u>Preservative</u> |              |
|-------------------------|----------------|----------------------------------|------------------|-------------|---------------------|--------------|
|                         |                |                                  | <u>pH</u>        | <u>Temp</u> | <u>Added (mls)</u>  | <u>Lot #</u> |
| MW-16-01                | 240-183128-C-1 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-01                | 240-183128-D-1 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-01                | 240-183128-E-1 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-183128-C-2 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-183128-D-2 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-183128-E-2 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-183128-C-3 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-183128-D-3 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-183128-E-3 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-06                 | 240-183128-C-4 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW17-06                 | 240-183128-D-4 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-06                 | 240-183128-E-4 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-07                 | 240-183128-C-5 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW17-07                 | 240-183128-D-5 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-07                 | 240-183128-E-5 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-183128-C-6 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-183128-D-6 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-183128-E-6 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Vincent Buening  
TRC Environmental Corporation.  
1540 Eisenhower Place  
Ann Arbor, Michigan 48108-7080

Generated 5/5/2023 12:58:21 PM

## JOB DESCRIPTION

CCR DTE River Rouge Power Plant

## JOB NUMBER

240-183128-2

# Eurofins Cleveland

## Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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5/5/2023 12:58:21 PM

Authorized for release by  
Kris Brooks, Project Manager II  
[Kris.Brooks@et.eurofinsus.com](mailto:Kris.Brooks@et.eurofinsus.com)  
(330)966-9790



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# Definitions/Glossary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Qualifiers

### Rad

| Qualifier | Qualifier Description                            |
|-----------|--|
| G         | The Sample MDC is greater than the requested RL. |
| U         | Result is less than the sample detection limit.  |

## Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |
|----------------|---|
| α              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |
| %R             | Percent Recovery  |
| CFL            | Contains Free Liquid  |
| CFU            | Colony Forming Unit   |
| CNF            | Contains No Free Liquid   |
| DER            | Duplicate Error Ratio (normalized absolute difference)  |
| Dil Fac        | Dilution Factor   |
| DL             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MCL            | EPA recommended "Maximum Contaminant Level"   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| MDL            | Method Detection Limit  |
| ML             | Minimum Level (Dioxin)  |
| MPN            | Most Probable Number  |
| MQL            | Method Quantitation Limit   |
| NC             | Not Calculated  |
| ND             | Not Detected at the reporting limit (or MDL or EDL if shown)  |
| NEG            | Negative / Absent   |
| POS            | Positive / Present  |
| PQL            | Practical Quantitation Limit  |
| PRES           | Presumptive   |
| QC             | Quality Control   |
| RER            | Relative Error Ratio (Radiochemistry)   |
| RL             | Reporting Limit or Requested Limit (Radiochemistry)   |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                        |
| TEF            | Toxicity Equivalent Factor (Dioxin)   |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)   |
| TNTC           | Too Numerous To Count   |

# Case Narrative

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Job ID: 240-183128-2

### Laboratory: Eurofins Cleveland

#### Narrative

#### Job Narrative 240-183128-2

#### Receipt

The samples were received on 4/7/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8°C and 2.6°C

#### Gas Flow Proportional Counter

Method 9315\_Ra226: Radium-226 Prep Batch 160-607331The following samples were prepared at a reduced aliquot due to Matrix: MW-16-01 (240-183128-1), MW-16-02 (240-183128-2), MW-16-03 (240-183128-3), MW17-06 (240-183128-4), MW17-07 (240-183128-5) and DUP-01 (240-183128-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 9315\_Ra226: Radium-226 batch 607331Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.MW-16-01 (240-183128-1), MW-16-02 (240-183128-2), MW-16-03 (240-183128-3), MW17-06 (240-183128-4), MW17-07 (240-183128-5), DUP-01 (240-183128-6), (LCS 160-607331/2-A), (LCSD 160-607331/3-A) and (MB 160-607331/1-A)

Method 9320\_Ra228: Radium-228 Prep Batch 160-607332The following samples were prepared at a reduced aliquot due to Matrix: MW-16-01 (240-183128-1), MW-16-02 (240-183128-2), MW-16-03 (240-183128-3), MW17-06 (240-183128-4), MW17-07 (240-183128-5) and DUP-01 (240-183128-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead of a sample duplicate (DUP) to demonstrate batch precision.

Method 9320\_Ra228: Radium-228 batch 607332The detection goal was not met for the following sample(s). Sample was prepped at a reduced volume due to the presence of matrix interferences: MW-16-02 (240-183128-2). Analytical results are reported with the detection limit achieved.

Method 9320\_Ra228: Radium-228 batch 607332Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.MW-16-01 (240-183128-1), MW-16-02 (240-183128-2), MW-16-03 (240-183128-3), MW17-06 (240-183128-4), MW17-07 (240-183128-5), DUP-01 (240-183128-6), (LCS 160-607332/2-A), (LCSD 160-607332/3-A) and (MB 160-607332/1-A)

Method 9320\_Ra228: Radium-228 batch 607332The LCS recovered at (129%). The limits in our LIMS system at 75-125 reflect the requirements of a regulatory agency that represents a large amount of our work. However the samples associated with this LCS are not from this agency and are therefore held to our in-house statistical limits of (62-148%) per method requirements. The LCS passes, no further action is required (LCS 160-607332/2-A)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### Rad

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Method Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

| Method      | Method Description                                     | Protocol | Laboratory |
|-------------|--|----------|------------|
| 9315        | Radium-226 (GFPC)                                      | SW846    | EET SL     |
| 9320        | Radium-228 (GFPC)                                      | SW846    | EET SL     |
| Ra226_Ra228 | Combined Radium-226 and Radium-228                     | TAL-STL  | EET SL     |
| PrecSep_0   | Preparation, Precipitate Separation                    | None     | EET SL     |
| PrecSep-21  | Preparation, Precipitate Separation (21-Day In-Growth) | None     | EET SL     |

**Protocol References:**

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

**Laboratory References:**

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

| Lab Sample ID | Client Sample ID | Matrix       | Collected      | Received       |
|---------------|------------------|--------------|----------------|----------------|
| 240-183128-1  | MW-16-01         | Ground Water | 04/03/23 09:05 | 04/07/23 08:00 |
| 240-183128-2  | MW-16-02         | Ground Water | 04/03/23 10:25 | 04/07/23 08:00 |
| 240-183128-3  | MW-16-03         | Ground Water | 04/03/23 11:50 | 04/07/23 08:00 |
| 240-183128-4  | MW17-06          | Water        | 04/03/23 13:20 | 04/07/23 08:00 |
| 240-183128-5  | MW17-07          | Water        | 04/03/23 14:25 | 04/07/23 08:00 |
| 240-183128-6  | DUP-01           | Ground Water | 04/03/23 00:00 | 04/07/23 08:00 |

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## Detection Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-183128-1**

No Detections.

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-183128-2**

No Detections.

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-183128-3**

No Detections.

**Client Sample ID: MW17-06**

**Lab Sample ID: 240-183128-4**

No Detections.

**Client Sample ID: MW17-07**

**Lab Sample ID: 240-183128-5**

No Detections.

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-183128-6**

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland



# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-183128-1**

Date Collected: 04/03/23 09:05

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.314  | U         | 0.242                       | 0.244                       | 1.00 | 0.336 | pCi/L | 04/13/23 10:14 | 05/05/23 07:29 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 80.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:14 | 05/05/23 07:29 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 0.398  | U         | 0.505                       | 0.507                       | 1.00 | 0.840 | pCi/L | 04/13/23 10:59 | 05/04/23 13:53 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 80.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:53 | 1       |
| Y Carrier  | 72.9   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:53 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium 226<br>+ 228 | 0.712  | U         | 0.560                       | 0.563                       | 5.00 | 0.840 | pCi/L |          | 05/05/23 13:49 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-183128-2**

Date Collected: 04/03/23 10:25

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.517  |           | 0.317                       | 0.320                       | 1.00 | 0.405 | pCi/L | 04/13/23 10:14 | 05/05/23 07:29 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 70.4   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:14 | 05/05/23 07:29 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC  | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|------|-------|----------------|----------------|---------|
| Radium-228 | 0.698  | U G       | 0.702                       | 0.705                       | 1.00 | 1.13 | pCi/L | 04/13/23 10:59 | 05/04/23 13:53 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |      |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 70.4   |           | 30 - 110                    |                             |      |      |       | 04/13/23 10:59 | 05/04/23 13:53 | 1       |
| Y Carrier  | 72.1   |           | 30 - 110                    |                             |      |      |       | 04/13/23 10:59 | 05/04/23 13:53 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC  | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 1.22   |           | 0.770                       | 0.774                       | 5.00 | 1.13 | pCi/L |          | 05/05/23 13:49 | 1       |



# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-183128-3**

Date Collected: 04/03/23 11:50

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.637  |           | 0.300                       | 0.306                       | 1.00 | 0.325 | pCi/L | 04/13/23 10:14 | 05/05/23 07:29 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 88.4   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:14 | 05/05/23 07:29 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 0.554  | U         | 0.511                       | 0.514                       | 1.00 | 0.812 | pCi/L | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 88.4   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Y Carrier  | 75.9   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 1.19   |           | 0.593                       | 0.598                       | 5.00 | 0.812 | pCi/L |          | 05/05/23 13:49 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW17-06**

**Lab Sample ID: 240-183128-4**

Date Collected: 04/03/23 13:20

Matrix: Water

Date Received: 04/07/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 1.26   |           | 0.404                       | 0.419                       | 1.00 | 0.353 | pCi/L | 04/13/23 10:14 | 05/05/23 07:29 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 84.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:14 | 05/05/23 07:29 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 1.92   |           | 0.678                       | 0.700                       | 1.00 | 0.808 | pCi/L | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 84.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Y Carrier  | 72.9   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 3.17   |           | 0.789                       | 0.816                       | 5.00 | 0.808 | pCi/L |          | 05/05/23 13:49 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW17-07**

**Lab Sample ID: 240-183128-5**

Date Collected: 04/03/23 14:25

Matrix: Water

Date Received: 04/07/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.670  |           | 0.325                       | 0.330                       | 1.00 | 0.386 | pCi/L | 04/13/23 10:14 | 05/05/23 07:29 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 88.9   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:14 | 05/05/23 07:29 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 1.28   |           | 0.590                       | 0.602                       | 1.00 | 0.776 | pCi/L | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 88.9   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Y Carrier  | 72.5   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 1.95   |           | 0.674                       | 0.687                       | 5.00 | 0.776 | pCi/L |          | 05/05/23 13:49 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-183128-6**

Date Collected: 04/03/23 00:00

Matrix: Ground Water

Date Received: 04/07/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.300  | U         | 0.243                       | 0.244                       | 1.00 | 0.348 | pCi/L | 04/13/23 10:14 | 05/05/23 07:30 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 83.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:14 | 05/05/23 07:30 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 0.349  | U         | 0.524                       | 0.525                       | 1.00 | 0.888 | pCi/L | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 83.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |
| Y Carrier  | 74.8   |           | 30 - 110                    |                             |      |       |       | 04/13/23 10:59 | 05/04/23 13:54 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium 226<br>+ 228 | 0.649  | U         | 0.578                       | 0.579                       | 5.00 | 0.888 | pCi/L |          | 05/05/23 13:49 | 1       |

# Tracer/Carrier Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Method: 9315 - Radium-226 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

|                              |                  | Percent Yield (Acceptance Limits) |  |
|------------------------------|------------------|-----------------------------------|--|
| Lab Sample ID                | Client Sample ID | Ba<br>(30-110)                    |  |
| 240-183128-1                 | MW-16-01         | 80.8                              |  |
| 240-183128-2                 | MW-16-02         | 70.4                              |  |
| 240-183128-3                 | MW-16-03         | 88.4                              |  |
| 240-183128-6                 | DUP-01           | 83.8                              |  |
| <b>Tracer/Carrier Legend</b> |                  |                                   |  |
| Ba = Ba Carrier              |                  |                                   |  |

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

|                              |                        | Percent Yield (Acceptance Limits) |  |
|------------------------------|------------------------|-----------------------------------|--|
| Lab Sample ID                | Client Sample ID       | Ba<br>(30-110)                    |  |
| 240-183128-4                 | MW17-06                | 84.8                              |  |
| 240-183128-5                 | MW17-07                | 88.9                              |  |
| LCS 160-607331/2-A           | Lab Control Sample     | 88.1                              |  |
| LCSD 160-607331/3-A          | Lab Control Sample Dup | 87.8                              |  |
| MB 160-607331/1-A            | Method Blank           | 85.8                              |  |
| <b>Tracer/Carrier Legend</b> |                        |                                   |  |
| Ba = Ba Carrier              |                        |                                   |  |

## Method: 9320 - Radium-228 (GFPC)

Matrix: Ground Water

Prep Type: Total/NA

|                              |                  | Percent Yield (Acceptance Limits) |               |
|------------------------------|------------------|-----------------------------------|---------------|
| Lab Sample ID                | Client Sample ID | Ba<br>(30-110)                    | Y<br>(30-110) |
| 240-183128-1                 | MW-16-01         | 80.8                              | 72.9          |
| 240-183128-2                 | MW-16-02         | 70.4                              | 72.1          |
| 240-183128-3                 | MW-16-03         | 88.4                              | 75.9          |
| 240-183128-6                 | DUP-01           | 83.8                              | 74.8          |
| <b>Tracer/Carrier Legend</b> |                  |                                   |               |
| Ba = Ba Carrier              |                  |                                   |               |
| Y = Y Carrier                |                  |                                   |               |

## Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

|                              |                        | Percent Yield (Acceptance Limits) |               |
|------------------------------|------------------------|-----------------------------------|---------------|
| Lab Sample ID                | Client Sample ID       | Ba<br>(30-110)                    | Y<br>(30-110) |
| 240-183128-4                 | MW17-06                | 84.8                              | 72.9          |
| 240-183128-5                 | MW17-07                | 88.9                              | 72.5          |
| LCS 160-607332/2-A           | Lab Control Sample     | 88.1                              | 84.9          |
| LCSD 160-607332/3-A          | Lab Control Sample Dup | 87.8                              | 83.0          |
| MB 160-607332/1-A            | Method Blank           | 85.8                              | 81.1          |
| <b>Tracer/Carrier Legend</b> |                        |                                   |               |
| Ba = Ba Carrier              |                        |                                   |               |
| Y = Y Carrier                |                        |                                   |               |



# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-607331/1-A**  
**Matrix: Water**  
**Analysis Batch: 610360**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 607331**

| Analyte    | MB        |              | Count           | Total           | RL             | MDC            | Unit    | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|-----------------|-----------------|----------------|----------------|---------|----------------|----------------|---------|
|            | Result    | MB Qualifier | Uncert. (2σ+/-) | Uncert. (2σ+/-) |                |                |         |                |                |         |
| Radium-226 | 0.09323   | U            | 0.153           | 0.154           | 1.00           | 0.268          | pCi/L   | 04/13/23 10:14 | 05/05/23 07:26 | 1       |
| Carrier    | MB %Yield | MB Qualifier | Limits          |                 | Prepared       | Analyzed       | Dil Fac |                |                |         |
| Ba Carrier | 85.8      |              | 30 - 110        |                 | 04/13/23 10:14 | 05/05/23 07:26 | 1       |                |                |         |

**Lab Sample ID: LCS 160-607331/2-A**  
**Matrix: Water**  
**Analysis Batch: 610360**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 607331**

| Analyte    | Spike Added | LCS Result    | LCS Qual | Total           | RL   | MDC   | Unit  | %Rec | %Rec Limits |
|------------|-------------|---------------|----------|-----------------|------|-------|-------|------|-------------|
|            |             |               |          | Uncert. (2σ+/-) |      |       |       |      |             |
| Radium-226 | 11.3        | 9.559         |          | 1.23            | 1.00 | 0.367 | pCi/L | 84   | 70 - 113    |
| Carrier    | LCS %Yield  | LCS Qualifier | Limits   |                 |      |       |       |      |             |
| Ba Carrier | 88.1        |               | 30 - 110 |                 |      |       |       |      |             |

**Lab Sample ID: LCSD 160-607331/3-A**  
**Matrix: Water**  
**Analysis Batch: 610360**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 607331**

| Analyte    | Spike Added | LCSD Result    | LCSD Qual | Total           | RL   | MDC   | Unit  | %Rec | %Rec Limits | RER  | Limit |
|------------|-------------|----------------|-----------|-----------------|------|-------|-------|------|-------------|------|-------|
|            |             |                |           | Uncert. (2σ+/-) |      |       |       |      |             |      |       |
| Radium-226 | 11.3        | 10.26          |           | 1.29            | 1.00 | 0.296 | pCi/L | 91   | 70 - 113    | 0.28 | 1     |
| Carrier    | LCSD %Yield | LCSD Qualifier | Limits    |                 |      |       |       |      |             |      |       |
| Ba Carrier | 87.8        |                | 30 - 110  |                 |      |       |       |      |             |      |       |

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-607332/1-A**  
**Matrix: Water**  
**Analysis Batch: 610056**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 607332**

| Analyte    | MB        |              | Count           | Total           | RL             | MDC            | Unit    | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|-----------------|-----------------|----------------|----------------|---------|----------------|----------------|---------|
|            | Result    | MB Qualifier | Uncert. (2σ+/-) | Uncert. (2σ+/-) |                |                |         |                |                |         |
| Radium-228 | 0.03713   | U            | 0.302           | 0.302           | 1.00           | 0.561          | pCi/L   | 04/13/23 10:59 | 05/04/23 13:50 | 1       |
| Carrier    | MB %Yield | MB Qualifier | Limits          |                 | Prepared       | Analyzed       | Dil Fac |                |                |         |
| Ba Carrier | 85.8      |              | 30 - 110        |                 | 04/13/23 10:59 | 05/04/23 13:50 | 1       |                |                |         |
| Y Carrier  | 81.1      |              | 30 - 110        |                 | 04/13/23 10:59 | 05/04/23 13:50 | 1       |                |                |         |

# QC Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-607332/2-A**  
**Matrix: Water**  
**Analysis Batch: 610056**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 607332**

| Analyte | Spike Added | LCS Result | LCS Qual | Total Uncert. (2σ+/-) | RL | MDC | Unit | %Rec | %Rec Limits |
|---------|-------------|------------|----------|-----------------------|----|-----|------|------|-------------|
|         |             |            |          |                       |    |     |      |      |             |

| Carrier    | LCS    |           | Limits   |
|------------|--------|-----------|----------|
|            | %Yield | Qualifier |          |
| Ba Carrier | 88.1   |           | 30 - 110 |
| Y Carrier  | 84.9   |           | 30 - 110 |

**Lab Sample ID: LCSD 160-607332/3-A**  
**Matrix: Water**  
**Analysis Batch: 610057**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 607332**

| Analyte | Spike Added | LCSD Result | LCSD Qual | Total Uncert. (2σ+/-) | RL | MDC | Unit | %Rec | %Rec Limits | RER | RER Limit |
|---------|-------------|-------------|-----------|-----------------------|----|-----|------|------|-------------|-----|-----------|
|         |             |             |           |                       |    |     |      |      |             |     |           |

| Carrier    | LCSD   |           | Limits   |
|------------|--------|-----------|----------|
|            | %Yield | Qualifier |          |
| Ba Carrier | 87.8   |           | 30 - 110 |
| Y Carrier  | 83.0   |           | 30 - 110 |

# QC Association Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Rad

### Prep Batch: 607331

| Lab Sample ID       | Client Sample ID       | Prep Type | Matrix       | Method     | Prep Batch |
|---------------------|------------------------|-----------|--------------|------------|------------|
| 240-183128-1        | MW-16-01               | Total/NA  | Ground Water | PrecSep-21 |            |
| 240-183128-2        | MW-16-02               | Total/NA  | Ground Water | PrecSep-21 |            |
| 240-183128-3        | MW-16-03               | Total/NA  | Ground Water | PrecSep-21 |            |
| 240-183128-4        | MW17-06                | Total/NA  | Water        | PrecSep-21 |            |
| 240-183128-5        | MW17-07                | Total/NA  | Water        | PrecSep-21 |            |
| 240-183128-6        | DUP-01                 | Total/NA  | Ground Water | PrecSep-21 |            |
| MB 160-607331/1-A   | Method Blank           | Total/NA  | Water        | PrecSep-21 |            |
| LCS 160-607331/2-A  | Lab Control Sample     | Total/NA  | Water        | PrecSep-21 |            |
| LCSD 160-607331/3-A | Lab Control Sample Dup | Total/NA  | Water        | PrecSep-21 |            |

### Prep Batch: 607332

| Lab Sample ID       | Client Sample ID       | Prep Type | Matrix       | Method    | Prep Batch |
|---------------------|------------------------|-----------|--------------|-----------|------------|
| 240-183128-1        | MW-16-01               | Total/NA  | Ground Water | PrecSep_0 |            |
| 240-183128-2        | MW-16-02               | Total/NA  | Ground Water | PrecSep_0 |            |
| 240-183128-3        | MW-16-03               | Total/NA  | Ground Water | PrecSep_0 |            |
| 240-183128-4        | MW17-06                | Total/NA  | Water        | PrecSep_0 |            |
| 240-183128-5        | MW17-07                | Total/NA  | Water        | PrecSep_0 |            |
| 240-183128-6        | DUP-01                 | Total/NA  | Ground Water | PrecSep_0 |            |
| MB 160-607332/1-A   | Method Blank           | Total/NA  | Water        | PrecSep_0 |            |
| LCS 160-607332/2-A  | Lab Control Sample     | Total/NA  | Water        | PrecSep_0 |            |
| LCSD 160-607332/3-A | Lab Control Sample Dup | Total/NA  | Water        | PrecSep_0 |            |

# Lab Chronicle

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-183128-1**

Date Collected: 04/03/23 09:05

Matrix: Ground Water

Date Received: 04/07/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 607331       | KAC           | EET SL | 04/13/23 10:14       |
| Total/NA  | Analysis   | 9315         |     | 1               | 610360       | FLC           | EET SL | 05/05/23 07:29       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 607332       | KAC           | EET SL | 04/13/23 10:59       |
| Total/NA  | Analysis   | 9320         |     | 1               | 610050       | FLC           | EET SL | 05/04/23 13:53       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 610390       | EMH           | EET SL | 05/05/23 13:49       |

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-183128-2**

Date Collected: 04/03/23 10:25

Matrix: Ground Water

Date Received: 04/07/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 607331       | KAC           | EET SL | 04/13/23 10:14       |
| Total/NA  | Analysis   | 9315         |     | 1               | 610360       | FLC           | EET SL | 05/05/23 07:29       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 607332       | KAC           | EET SL | 04/13/23 10:59       |
| Total/NA  | Analysis   | 9320         |     | 1               | 610050       | FLC           | EET SL | 05/04/23 13:53       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 610390       | EMH           | EET SL | 05/05/23 13:49       |

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-183128-3**

Date Collected: 04/03/23 11:50

Matrix: Ground Water

Date Received: 04/07/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 607331       | KAC           | EET SL | 04/13/23 10:14       |
| Total/NA  | Analysis   | 9315         |     | 1               | 610360       | FLC           | EET SL | 05/05/23 07:29       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 607332       | KAC           | EET SL | 04/13/23 10:59       |
| Total/NA  | Analysis   | 9320         |     | 1               | 610050       | FLC           | EET SL | 05/04/23 13:54       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 610390       | EMH           | EET SL | 05/05/23 13:49       |

**Client Sample ID: MW17-06**

**Lab Sample ID: 240-183128-4**

Date Collected: 04/03/23 13:20

Matrix: Water

Date Received: 04/07/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 607331       | KAC           | EET SL | 04/13/23 10:14       |
| Total/NA  | Analysis   | 9315         |     | 1               | 610360       | FLC           | EET SL | 05/05/23 07:29       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 607332       | KAC           | EET SL | 04/13/23 10:59       |
| Total/NA  | Analysis   | 9320         |     | 1               | 610050       | FLC           | EET SL | 05/04/23 13:54       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 610390       | EMH           | EET SL | 05/05/23 13:49       |

# Lab Chronicle

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

**Client Sample ID: MW17-07**

**Lab Sample ID: 240-183128-5**

Date Collected: 04/03/23 14:25

Matrix: Water

Date Received: 04/07/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 607331       | KAC           | EET SL | 04/13/23 10:14       |
| Total/NA  | Analysis   | 9315         |     | 1               | 610360       | FLC           | EET SL | 05/05/23 07:29       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 607332       | KAC           | EET SL | 04/13/23 10:59       |
| Total/NA  | Analysis   | 9320         |     | 1               | 610050       | FLC           | EET SL | 05/04/23 13:54       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 610390       | EMH           | EET SL | 05/05/23 13:49       |

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-183128-6**

Date Collected: 04/03/23 00:00

Matrix: Ground Water

Date Received: 04/07/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 607331       | KAC           | EET SL | 04/13/23 10:14       |
| Total/NA  | Analysis   | 9315         |     | 1               | 610360       | FLC           | EET SL | 05/05/23 07:30       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 607332       | KAC           | EET SL | 04/13/23 10:59       |
| Total/NA  | Analysis   | 9320         |     | 1               | 610050       | FLC           | EET SL | 05/04/23 13:54       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 610390       | EMH           | EET SL | 05/05/23 13:49       |

**Laboratory References:**

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-183128-2

## Laboratory: Eurofins St. Louis

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

| Authority                | Program                                 | Identification Number         | Expiration Date |
|--------------------------|---|-------------------------------|-----------------|
| Alaska (UST)             | State                                   | 20-001                        | 05-06-25        |
| ANAB                     | Dept. of Defense ELAP                   | L2305                         | 04-06-25        |
| ANAB                     | Dept. of Energy                         | L2305.01                      | 04-06-25        |
| ANAB                     | ISO/IEC 17025                           | L2305                         | 04-06-25        |
| Arizona                  | State                                   | AZ0813                        | 12-08-23        |
| California               | Los Angeles County Sanitation Districts | 10259                         | 06-30-22 *      |
| California               | State                                   | 2886                          | 06-30-23        |
| Florida                  | NELAP                                   | E87689                        | 06-30-23        |
| HI - RadChem Recognition | State                                   | n/a                           | 06-30-23        |
| Illinois                 | NELAP                                   | 200023                        | 11-30-23        |
| Iowa                     | State                                   | 373                           | 12-01-24        |
| Kansas                   | NELAP                                   | E-10236                       | 10-31-23        |
| Kentucky (DW)            | State                                   | KY90125                       | 12-31-23        |
| Kentucky (WW)            | State                                   | KY90125 (Permit<br>KY0004049) | 12-31-23        |
| Louisiana (All)          | NELAP                                   | 04080                         | 06-30-23        |
| Louisiana (DW)           | State                                   | LA011                         | 12-31-23        |
| Maryland                 | State                                   | 310                           | 09-30-23        |
| MI - RadChem Recognition | State                                   | 9005                          | 06-30-23        |
| Missouri                 | State                                   | 780                           | 06-30-25        |
| Nevada                   | State                                   | MO000542020-1                 | 07-31-23        |
| New Jersey               | NELAP                                   | MO002                         | 06-30-23        |
| New York                 | NELAP                                   | 11616                         | 03-31-24        |
| North Carolina (DW)      | State                                   | 29700                         | 07-31-23        |
| North Dakota             | State                                   | R-207                         | 06-30-23        |
| Oklahoma                 | NELAP                                   | 9997                          | 08-31-23        |
| Oregon                   | NELAP                                   | 4157                          | 09-01-23        |
| Pennsylvania             | NELAP                                   | 68-00540                      | 02-28-24        |
| South Carolina           | State                                   | 85002001                      | 06-30-23        |
| Texas                    | NELAP                                   | T104704193                    | 07-31-23        |
| US Fish & Wildlife       | US Federal Programs                     | 058448                        | 07-31-23        |
| USDA                     | US Federal Programs                     | P330-17-00028                 | 06-11-23        |
| Utah                     | NELAP                                   | MO000542021-14                | 07-31-23        |
| Virginia                 | NELAP                                   | 10310                         | 06-14-23        |
| Washington               | State                                   | C592                          | 08-30-23        |
| West Virginia DEP        | State                                   | 381                           | 10-31-23        |

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



# MICHIGAN 190 Chain of Custody Record

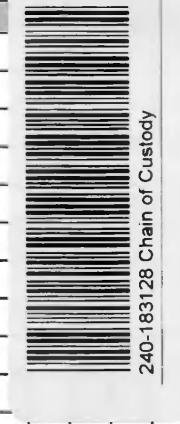
**Eurofins Canton**  
 180 S. Van Buren Avenue  
 Barberton, OH 44203  
 Phone: 330-497-9396 Fax: 330-497-0772

**MICHIGAN 190**

**Chain of Custody Record**

**MICHIGAN 190**

**eurofins** Environment Testing

|   |  |  |  |  |  |
|---|--|--|--|--|--|
| <b>Client Information</b>   |  | Lab PM: Brooks, Kris M   |  | COC No: 240-106117-37999.1   |  |
| Client Contact: Chris Scieszka  |  | E-Mail: Kris.Brooks@et.eurofins.com                                    |  | Page: Page 1 of 1  |  |
| Company: TRC Environmental Corporation.                                       |  | PWSID  |  | Job #: MI  |  |
| Address: 1540 Eisenhower Place  |  | City: Ann Arbor  |  | State of Origin: MI  |  |
| State, Zip: MI, 48108-7080  |  | Phone: 313-971-7080 (Tel) 313-971-9022 (Fax)                           |  | Total Number of Containers: <del>XXXXXX</del>  |  |
| Email: CScieszka@trccompanies.com   |  | Project #: 24016806  |  | Preservation Codes:<br>M - Hexane<br>N - None<br>O - AsNaO2<br>P - Na2O4S<br>Q - Na2SO3<br>R - Na2S2O3<br>S - H2SO4<br>T - TSP Dodecahydrate<br>U - Acetone<br>V - MCAA<br>W - pH 4-5<br>Y - Trizma<br>Z - other (specify)<br>Other: |  |
| Due Date Requested:   |  | TAT Requested (days): <b>Standard</b>                                  |  | Special Instructions/Note:   |  |
| Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No  |  | PO #: 179837 - 2022  |  | <div style="text-align: center;"> <br/>                     240-183128 Chain of Custody                 </div>                                    |  |
| WO #: 413519.0005   |  | Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> |  |  |  |
| Project #: 24016806   |  | Form MS/MSD (Yes or No): <input checked="" type="checkbox"/>           |  |  |  |
| SSOW#:  |  | 9056A_28D - Chloride, Fluoride and Sulfate                             |  |  |  |
| Sample Date   |  | 9315_Ra226, 9320_Ra228   |  |  |  |
| Sample Time   |  | 2540C_Calcd - TDS  |  |  |  |
| Sample Type (C=comp, G=grab)  |  | 6010B, 6020, 7470A   |  |  |  |
| Preservation Code   |  | Matrix (W=water, B=solid, O=soil, A=air)                               |  |  |  |
| MW-16-01  |  | 4-3-23 0905 G  |  |  |  |
| MW-16-02  |  | 1025 G   |  |  |  |
| MW-16-03  |  | 1150 G   |  |  |  |
| MW-17-07  |  | 1320 G   |  |  |  |
| DUP-01  |  | 1425 G   |  |  |  |
| Relinquished by:  |  | Date:  |  | Company:   |  |
| Relinquished by:  |  | Date:  |  | Company:   |  |
| Relinquished by:  |  | Date:  |  | Company:   |  |
| Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No |  | Custody Seal No:   |  | Cooler Temperature(s) C and Other Remarks:   |  |

**Eurofins - Canton Sample Receipt Form/Narrative** Login # : \_\_\_\_\_  
**Barberton Facility**

Client TRC Site Name \_\_\_\_\_ Cooler unpacked by: Mandy  
Cooler Received on 4-7-23 Opened on 4-7-23  
FedEx: 1<sup>st</sup> Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other \_\_\_\_\_

**Receipt After-hours: Drop-off Date/Time** \_\_\_\_\_ **Storage Location** \_\_\_\_\_

Eurofins Cooler # 22 Foam Box Client Cooler Box Other \_\_\_\_\_  
Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_  
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
IR GUN # 22 (CF +0 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity \_\_\_\_\_ Yes No  
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA  
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA  
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No  
4. Did custody papers accompany the sample(s)? Yes No  
5. Were the custody papers relinquished & signed in the appropriate place? Yes No  
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No  
7. Did all bottles arrive in good condition (Unbroken)? Yes No  
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No  
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No  
10. Were correct bottle(s) used for the test(s) indicated? Yes No  
11. Sufficient quantity received to perform indicated analyses? Yes No  
12. Are these work share samples and all listed on the COC? Yes No  
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086  
14. Were VOAs on the COC? Yes No  
15. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA  
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No  
17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
Concerning \_\_\_\_\_

Tests that are not checked for pH by Receiving:  
VOAs  
Oil and Grease  
TOC

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**  additional next page Samples processed by: \_\_\_\_\_

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**19. SAMPLE CONDITION**  
Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
Sample(s) \_\_\_\_\_ were received in a broken container.  
Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**  
Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_

Temperature readings: \_\_\_\_\_

| <u>Client Sample ID</u> | <u>Lab ID</u>  | <u>Container Type</u>            | <u>Container</u> |             | <u>Preservative</u> |              |
|-------------------------|----------------|----------------------------------|------------------|-------------|---------------------|--------------|
|                         |                |                                  | <u>pH</u>        | <u>Temp</u> | <u>Added (mls)</u>  | <u>Lot #</u> |
| MW-16-01                | 240-183128-C-1 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-01                | 240-183128-D-1 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-01                | 240-183128-E-1 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-183128-C-2 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-183128-D-2 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-183128-E-2 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-183128-C-3 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-183128-D-3 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-183128-E-3 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-06                 | 240-183128-C-4 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW17-06                 | 240-183128-D-4 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-06                 | 240-183128-E-4 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-07                 | 240-183128-C-5 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW17-07                 | 240-183128-D-5 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| MW17-07                 | 240-183128-E-5 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-183128-C-6 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-183128-D-6 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-183128-E-6 | Plastic 1 liter - Nitric Acid    | <2               | _____       | _____               | _____        |

- 1
- 2
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**Eurofins Canton**  
 180 S. Van Buren Avenue  
 Barberton, OH 44203  
 Phone: 330-497-9396 Fax: 330-497-0772

# Chain of Custody Record



Environment Testing



|   |        |   |                |  |   |
|---|--------|---|----------------|--|---|
| <b>Client Information (Sub Contract Lab)</b>  |        | Sampler:                                  | Lab PM:        | Carmer Tracking No(s):   | COC No:   |
| Client Contact:<br>Shipping/Receiving   |        | Phone:                                    | Brooks, Kris M | State of Origin:<br>Michigan   | 240-166070-1  |
| Company:<br>TestAmerica Laboratories, Inc.  |        | E-Mail:<br>Kris.Brooks@et.eurofins.com    |                | Page:<br>Page 1 of 1   | Job #:<br>240-183128-1                                    |
| Address:<br>13715 Ridder Trail North,<br>City:<br>Earth City<br>State, Zip:<br>MO, 63045<br>Phone:<br>314-298-8566(Tel) 314-298-8757(Fax)<br>Email: |        | Accreditations Required (See note):       |                | Preservation Codes:<br>M - Hexane<br>N - None<br>O - AsNaO2<br>P - Na2O4S<br>Q - Na2SO3<br>R - Na2S2O3<br>S - H2SO4<br>T - TSP Dodecahydrate<br>U - Acetone<br>V - MCAA<br>W - pH 4-5<br>Y - Trizma<br>Z - other (specify) |   |
| Due Date Requested:<br>4/20/2023  |        | Analysis Requested                        |                | Total Number of Containers   |   |
| TAT Requested (days):   |        | 9315_Ra226/PreSep_21 Standard Target List |                | 2  |   |
| PO #:   |        | 9320_Ra226/PreSep_0 Standard Target List  |                | 2  |   |
| WO #:   |        | 9320_Ra226/PreSep_0 Standard Target List  |                | 2  |   |
| Project #:<br>24016806  |        | Perform MS/MSD (Yes or No)                |                | 2  |   |
| SSOW#:  |        | Field Filtered Sample (Yes or No)         |                | 2  |   |
| Site:<br>TRC CCR DTE River Rouge Power Plant  |        | Preservation Code:                        |                | 2  |   |
| Sample Identification - Client ID (Lab ID)  |        | Sample Date                               | Sample Time    | Sample Type (C=Comp, G=grab)   | Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air) |
| MW-16-01 (240-183128-1)   | 4/3/23 | 09:05 Eastern                             | Water          | Water  |   |
| MW-16-02 (240-183128-2)   | 4/3/23 | 10:25 Eastern                             | Water          | Water  |   |
| MW-16-03 (240-183128-3)   | 4/3/23 | 11:50 Eastern                             | Water          | Water  |   |
| MW17-06 (240-183128-4)  | 4/3/23 | 13:20 Eastern                             | Water          | Water  |   |
| MW17-07 (240-183128-5)  | 4/3/23 | 14:25 Eastern                             | Water          | Water  |   |
| DUP-01 (240-183128-6)   | 4/3/23 | Eastern                                   | Water          | Water  |   |
| Special Instructions/Note:  |        | 12  |                |  |   |

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

**Possible Hazard Identification**  
 Unconfirmed  
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2  
 Method of Shipment: Months

Relinquished by: *Rachel Nardis* Date: 4-7-23 11:30 Company: *ETC*  
 Relinquished by: *fedex* Date: 4/10/23 0940 Company: *ETC*  
 Relinquished by: *Barbara Shanberg-Stogsd* Date: Date: Company:

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



## Login Sample Receipt Checklist

Client: TRC Environmental Corporation.

Job Number: 240-183128-2

**Login Number: 183128**

**List Number: 2**

**Creator: Sharkey-Gonzalez, Briana L**

**List Source: Eurofins St. Louis**

**List Creation: 04/10/23 12:59 PM**

| Question   | Answer | Comment |
|--|--------|---------|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True   |         |
| The cooler's custody seal, if present, is intact.                                | True   |         |
| Sample custody seals, if present, are intact.                                    | True   |         |
| The cooler or samples do not appear to have been compromised or tampered with.   | True   |         |
| Samples were received on ice.  | N/A    |         |
| Cooler Temperature is acceptable.  | True   |         |
| Cooler Temperature is recorded.  | True   |         |
| COC is present.  | True   |         |
| COC is filled out in ink and legible.  | True   |         |
| COC is filled out with all pertinent information.                                | True   |         |
| Is the Field Sampler's name present on COC?                                      | True   |         |
| There are no discrepancies between the containers received and the COC.          | True   |         |
| Samples are received within Holding Time (excluding tests with immediate HTs)    | True   |         |
| Sample containers have legible labels.   | True   |         |
| Containers are not broken or leaking.  | True   |         |
| Sample collection date/times are provided.                                       | True   |         |
| Appropriate sample containers are used.  | True   |         |
| Sample bottles are completely filled.  | True   |         |
| Sample Preservation Verified.  | True   |         |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True   |         |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").  | True   |         |
| Multiphasic samples are not present.   | True   |         |
| Samples do not require splitting or compositing.                                 | True   |         |
| Residual Chlorine Checked.   | N/A    |         |







# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Vincent Buening  
TRC Environmental Corporation.  
1540 Eisenhower Place  
Ann Arbor, Michigan 48108-7080

Generated 12/5/2023 8:56:25 AM Revision 1

## JOB DESCRIPTION

CCR DTE River Rouge Power Plant

## JOB NUMBER

240-194646-1

# Eurofins Cleveland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Authorized for release by  
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# Definitions/Glossary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Qualifiers

### Metals

| Qualifier | Qualifier Description                                    |
|-----------|--|
| U         | Indicates the analyte was analyzed for but not detected. |

### General Chemistry

| Qualifier | Qualifier Description                                    |
|-----------|--|
| U         | Indicates the analyte was analyzed for but not detected. |

## Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |
|----------------|---|
| ▫              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |
| %R             | Percent Recovery  |
| CFL            | Contains Free Liquid  |
| CFU            | Colony Forming Unit   |
| CNF            | Contains No Free Liquid   |
| DER            | Duplicate Error Ratio (normalized absolute difference)  |
| Dil Fac        | Dilution Factor   |
| DL             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MCL            | EPA recommended "Maximum Contaminant Level"   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| MDL            | Method Detection Limit  |
| ML             | Minimum Level (Dioxin)  |
| MPN            | Most Probable Number  |
| MQL            | Method Quantitation Limit   |
| NC             | Not Calculated  |
| ND             | Not Detected at the reporting limit (or MDL or EDL if shown)  |
| NEG            | Negative / Absent   |
| POS            | Positive / Present  |
| PQL            | Practical Quantitation Limit  |
| PRES           | Presumptive   |
| QC             | Quality Control   |
| RER            | Relative Error Ratio (Radiochemistry)   |
| RL             | Reporting Limit or Requested Limit (Radiochemistry)   |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                        |
| TEF            | Toxicity Equivalent Factor (Dioxin)   |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)   |
| TNTC           | Too Numerous To Count   |

# Case Narrative

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Job ID: 240-194646-1**

**Laboratory: Eurofins Cleveland**

## Narrative

**Job Narrative  
240-194646-1**

### REVISION

The report being provided is a revision of the original report sent on 11/13/2023. The report (revision 1) is being revised to report the data to the RL only.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

### **Receipt**

The samples were received on 11/2/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.2°C, 1.3°C, 1.3°C and 1.9°C

### **Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### **General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Method Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

| Method   | Method Description                                 | Protocol | Laboratory |
|----------|--|----------|------------|
| 6010D    | Metals (ICP)                                       | SW846    | EET CLE    |
| 6020B    | Metals (ICP/MS)                                    | SW846    | EET CLE    |
| 9056A    | Anions, Ion Chromatography                         | SW846    | EET CLE    |
| SM 2540C | Solids, Total Dissolved (TDS)                      | SM       | EET CLE    |
| 3005A    | Preparation, Total Recoverable or Dissolved Metals | SW846    | EET CLE    |

#### Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396





# Sample Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       |
|---------------|------------------|--------|----------------|----------------|
| 240-194646-1  | MW-16-01         | Water  | 10/30/23 09:32 | 11/02/23 08:00 |
| 240-194646-2  | MW-16-02         | Water  | 10/30/23 13:58 | 11/02/23 08:00 |
| 240-194646-3  | MW-16-03         | Water  | 10/30/23 13:20 | 11/02/23 08:00 |
| 240-194646-4  | MW-17-06         | Water  | 10/30/23 10:38 | 11/02/23 08:00 |
| 240-194646-5  | MW-17-07         | Water  | 10/30/23 11:30 | 11/02/23 08:00 |
| 240-194646-6  | DUP-01           | Water  | 10/30/23 00:00 | 11/02/23 08:00 |

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# Detection Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Client Sample ID: MW-16-01

## Lab Sample ID: 240-194646-1

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 780    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Arsenic                | 5.2    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Barium                 | 79     |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 24000  |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 52     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 300    |           | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Fluoride               | 0.78   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 120    |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 720    |           | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-16-02

## Lab Sample ID: 240-194646-2

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 550    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 140    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 200000 |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 31     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 54     |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.32   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 550    |           | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 1000   |           | 20    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-16-03

## Lab Sample ID: 240-194646-3

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 130    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 26     |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 60000  |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 8.8    |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 42     |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.29   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 320    |           | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-06

## Lab Sample ID: 240-194646-4

| Analyte | Result | Qualifier | RL   | Unit | Dil Fac | D | Method | Prep Type            |
|---------|--------|-----------|------|------|---------|---|--------|----------------------|
| Boron   | 440    |           | 100  | ug/L | 1       |   | 6010D  | Total<br>Recoverable |
| Arsenic | 13     |           | 5.0  | ug/L | 1       |   | 6020B  | Total<br>Recoverable |
| Barium  | 150    |           | 5.0  | ug/L | 1       |   | 6020B  | Total<br>Recoverable |
| Calcium | 310000 |           | 1000 | ug/L | 1       |   | 6020B  | Total<br>Recoverable |

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

# Detection Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Client Sample ID: MW-17-06 (Continued)

## Lab Sample ID: 240-194646-4

| Analyte                | Result | Qualifier | RL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|------|------|---------|---|----------|----------------------|
| Lithium                | 27     |           | 8.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Molybdenum             | 8.2    |           | 5.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 830    |           | 20   | mg/L | 20      |   | 9056A    | Total/NA             |
| Fluoride               | 0.27   |           | 0.10 | mg/L | 2       |   | 9056A    | Total/NA             |
| Sulfate                | 460    |           | 20   | mg/L | 20      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 2600   |           | 40   | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-07

## Lab Sample ID: 240-194646-5

| Analyte                | Result | Qualifier | RL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|------|------|---------|---|----------|----------------------|
| Boron                  | 550    |           | 100  | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Arsenic                | 18     |           | 5.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Barium                 | 33     |           | 5.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 450000 |           | 1000 | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Cobalt                 | 6.9    |           | 1.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 30     |           | 8.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Molybdenum             | 13     |           | 5.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 2100   |           | 25   | mg/L | 25      |   | 9056A    | Total/NA             |
| Fluoride               | 0.34   |           | 0.25 | mg/L | 5       |   | 9056A    | Total/NA             |
| Sulfate                | 1300   |           | 25   | mg/L | 25      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 6400   |           | 50   | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: DUP-01

## Lab Sample ID: 240-194646-6

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 770    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Arsenic                | 5.6    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Barium                 | 79     |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 24000  |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 49     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 250    |           | 5.0   | mg/L | 5       |   | 9056A    | Total/NA             |
| Fluoride               | 0.75   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 120    |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 730    |           | 10    | mg/L | 1       |   | SM 2540C | Total/NA             |

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-194646-1**

Date Collected: 10/30/23 09:32

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 780    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:53 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.2    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:22 | 1       |
| Barium     | 79     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:22 | 1       |
| Calcium    | 24000  |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:22 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:22 | 1       |
| Lithium    | 52     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/08/23 20:07 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:22 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 300    |           | 10    | mg/L |   |          | 11/07/23 21:01 | 10      |
| Fluoride (SW846 9056A)            | 0.78   |           | 0.050 | mg/L |   |          | 11/07/23 20:39 | 1       |
| Sulfate (SW846 9056A)             | 120    |           | 1.0   | mg/L |   |          | 11/07/23 20:39 | 1       |
| Total Dissolved Solids (SM 2540C) | 720    |           | 10    | mg/L |   |          | 11/06/23 10:07 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-194646-2**

Date Collected: 10/30/23 13:58

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 550    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:57 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:24 | 1       |
| Barium     | 140    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:24 | 1       |
| Calcium    | 200000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:24 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:24 | 1       |
| Lithium    | 31     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/08/23 20:14 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:24 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 54     |           | 1.0   | mg/L |   |          | 11/07/23 19:56 | 1       |
| Fluoride (SW846 9056A)            | 0.32   |           | 0.050 | mg/L |   |          | 11/07/23 19:56 | 1       |
| Sulfate (SW846 9056A)             | 550    |           | 10    | mg/L |   |          | 11/07/23 20:17 | 10      |
| Total Dissolved Solids (SM 2540C) | 1000   |           | 20    | mg/L |   |          | 11/06/23 15:22 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-194646-3**

Date Collected: 10/30/23 13:20

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 130    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 05:02 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:27 | 1       |
| Barium     | 26     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:27 | 1       |
| Calcium    | 60000  |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:27 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:27 | 1       |
| Lithium    | 8.8    |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/08/23 20:17 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:27 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 42     |           | 1.0   | mg/L |   |          | 11/07/23 12:20 | 1       |
| Fluoride (SW846 9056A)            | 0.29   |           | 0.050 | mg/L |   |          | 11/07/23 12:20 | 1       |
| Sulfate (SW846 9056A)             | 1.0    | U         | 1.0   | mg/L |   |          | 11/07/23 12:20 | 1       |
| Total Dissolved Solids (SM 2540C) | 320    |           | 10    | mg/L |   |          | 11/06/23 15:22 | 1       |



# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-17-06**

**Lab Sample ID: 240-194646-4**

Date Collected: 10/30/23 10:38

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 440    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 05:06 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 13     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:29 | 1       |
| Barium     | 150    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:29 | 1       |
| Calcium    | 310000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:29 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:29 | 1       |
| Lithium    | 27     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/08/23 20:19 | 1       |
| Molybdenum | 8.2    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:29 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 830    |           | 20   | mg/L |   |          | 11/07/23 18:07 | 20      |
| Fluoride (SW846 9056A)            | 0.27   |           | 0.10 | mg/L |   |          | 11/07/23 17:46 | 2       |
| Sulfate (SW846 9056A)             | 460    |           | 20   | mg/L |   |          | 11/07/23 18:07 | 20      |
| Total Dissolved Solids (SM 2540C) | 2600   |           | 40   | mg/L |   |          | 11/06/23 15:22 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-17-07**

**Lab Sample ID: 240-194646-5**

Date Collected: 10/30/23 11:30

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 550    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 05:19 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 18     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:32 | 1       |
| Barium     | 33     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:32 | 1       |
| Calcium    | 450000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:32 | 1       |
| Cobalt     | 6.9    |           | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:32 | 1       |
| Lithium    | 30     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/08/23 20:22 | 1       |
| Molybdenum | 13     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:32 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 2100   |           | 25   | mg/L |   |          | 11/07/23 17:24 | 25      |
| Fluoride (SW846 9056A)            | 0.34   |           | 0.25 | mg/L |   |          | 11/07/23 17:02 | 5       |
| Sulfate (SW846 9056A)             | 1300   |           | 25   | mg/L |   |          | 11/07/23 17:24 | 25      |
| Total Dissolved Solids (SM 2540C) | 6400   |           | 50   | mg/L |   |          | 11/06/23 15:22 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: DUP-01**  
**Date Collected: 10/30/23 00:00**  
**Date Received: 11/02/23 08:00**

**Lab Sample ID: 240-194646-6**  
**Matrix: Water**

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 770    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 05:24 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.6    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:34 | 1       |
| Barium     | 79     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:34 | 1       |
| Calcium    | 24000  |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:34 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:34 | 1       |
| Lithium    | 49     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/08/23 20:24 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:34 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 250    |           | 5.0   | mg/L |   |          | 11/07/23 16:41 | 5       |
| Fluoride (SW846 9056A)            | 0.75   |           | 0.050 | mg/L |   |          | 11/07/23 16:19 | 1       |
| Sulfate (SW846 9056A)             | 120    |           | 1.0   | mg/L |   |          | 11/07/23 16:19 | 1       |
| Total Dissolved Solids (SM 2540C) | 730    |           | 10    | mg/L |   |          | 11/06/23 10:07 | 1       |

# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Method: 6010D - Metals (ICP)

**Lab Sample ID: MB 240-593395/1-A**  
**Matrix: Water**  
**Analysis Batch: 593675**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte | MB Result | MB Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|-----------|--------------|-----|------|---|----------------|----------------|---------|
| Boron   | 100       | U            | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 03:21 | 1       |

**Lab Sample ID: LCS 240-593395/2-A**  
**Matrix: Water**  
**Analysis Batch: 593675**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|-------------|------------|---------------|------|---|------|-------------|
| Boron   | 1000        | 1020       |               | ug/L |   | 102  | 80 - 120    |

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 240-593395/1-A**  
**Matrix: Water**  
**Analysis Batch: 593834**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte    | MB Result | MB Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0       | U            | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Barium     | 5.0       | U            | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Calcium    | 1000      | U            | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Cobalt     | 1.0       | U            | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Lithium    | 8.0       | U            | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Molybdenum | 5.0       | U            | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |

**Lab Sample ID: LCS 240-593395/27-A**  
**Matrix: Water**  
**Analysis Batch: 593834**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte    | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------|-------------|------------|---------------|------|---|------|-------------|
| Arsenic    | 1000        | 979        |               | ug/L |   | 98   | 80 - 120    |
| Barium     | 1000        | 956        |               | ug/L |   | 96   | 80 - 120    |
| Calcium    | 25000       | 24200      |               | ug/L |   | 97   | 80 - 120    |
| Cobalt     | 500         | 484        |               | ug/L |   | 97   | 80 - 120    |
| Lithium    | 500         | 496        |               | ug/L |   | 99   | 80 - 120    |
| Molybdenum | 500         | 482        |               | ug/L |   | 96   | 80 - 120    |

**Lab Sample ID: 240-194646-6 MS**  
**Matrix: Water**  
**Analysis Batch: 593834**

**Client Sample ID: DUP-01**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte    | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------|---------------|------------------|-------------|-----------|--------------|------|---|------|-------------|
| Arsenic    | 5.6           |                  | 1000        | 1020      |              | ug/L |   | 102  | 80 - 120    |
| Barium     | 79            |                  | 1000        | 1040      |              | ug/L |   | 96   | 80 - 120    |
| Calcium    | 24000         |                  | 25000       | 48200     |              | ug/L |   | 97   | 80 - 120    |
| Cobalt     | 1.0           | U                | 500         | 490       |              | ug/L |   | 98   | 80 - 120    |
| Molybdenum | 5.0           | U                | 500         | 501       |              | ug/L |   | 100  | 80 - 120    |

# QC Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 240-194646-6 MS  
 Matrix: Water  
 Analysis Batch: 593998

Client Sample ID: DUP-01  
 Prep Type: Total Recoverable  
 Prep Batch: 593395

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|---------------|------------------|-------------|-----------|--------------|------|---|------|-------------|
| Lithium | 49            |                  | 500         | 532       |              | ug/L |   | 97   | 80 - 120    |

Lab Sample ID: 240-194646-6 MSD  
 Matrix: Water  
 Analysis Batch: 593834

Client Sample ID: DUP-01  
 Prep Type: Total Recoverable  
 Prep Batch: 593395

| Analyte    | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|------------|---------------|------------------|-------------|------------|---------------|------|---|------|-------------|-----|-----------|
| Arsenic    | 5.6           |                  | 1000        | 1060       |               | ug/L |   | 105  | 80 - 120    | 3   | 20        |
| Barium     | 79            |                  | 1000        | 1060       |               | ug/L |   | 98   | 80 - 120    | 1   | 20        |
| Calcium    | 24000         |                  | 25000       | 48800      |               | ug/L |   | 99   | 80 - 120    | 1   | 20        |
| Cobalt     | 1.0           | U                | 500         | 504        |               | ug/L |   | 101  | 80 - 120    | 3   | 20        |
| Molybdenum | 5.0           | U                | 500         | 517        |               | ug/L |   | 103  | 80 - 120    | 3   | 20        |

Lab Sample ID: 240-194646-6 MSD  
 Matrix: Water  
 Analysis Batch: 593998

Client Sample ID: DUP-01  
 Prep Type: Total Recoverable  
 Prep Batch: 593395

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---------|---------------|------------------|-------------|------------|---------------|------|---|------|-------------|-----|-----------|
| Lithium | 49            |                  | 500         | 544        |               | ug/L |   | 99   | 80 - 120    | 2   | 20        |

## Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-593637/3  
 Matrix: Water  
 Analysis Batch: 593637

Client Sample ID: Method Blank  
 Prep Type: Total/NA

| Analyte  | MB Result | MB Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|----------|-----------|--------------|-------|------|---|----------|----------------|---------|
| Chloride | 1.0       | U            | 1.0   | mg/L |   |          | 11/07/23 02:35 | 1       |
| Fluoride | 0.050     | U            | 0.050 | mg/L |   |          | 11/07/23 02:35 | 1       |
| Sulfate  | 1.0       | U            | 1.0   | mg/L |   |          | 11/07/23 02:35 | 1       |

Lab Sample ID: LCS 240-593637/4  
 Matrix: Water  
 Analysis Batch: 593637

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

| Analyte  | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|----------|-------------|------------|---------------|------|---|------|-------------|
| Chloride | 50.0        | 50.2       |               | mg/L |   | 100  | 90 - 110    |
| Fluoride | 2.50        | 2.64       |               | mg/L |   | 106  | 90 - 110    |
| Sulfate  | 50.0        | 52.0       |               | mg/L |   | 104  | 90 - 110    |

Lab Sample ID: 240-194646-3 MS  
 Matrix: Water  
 Analysis Batch: 593637

Client Sample ID: MW-16-03  
 Prep Type: Total/NA

| Analyte  | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|----------|---------------|------------------|-------------|-----------|--------------|------|---|------|-------------|
| Chloride | 42            |                  | 50.0        | 90.8      |              | mg/L |   | 99   | 80 - 120    |
| Fluoride | 0.29          |                  | 2.50        | 3.00      |              | mg/L |   | 109  | 80 - 120    |
| Sulfate  | 1.0           | U                | 50.0        | 54.1      |              | mg/L |   | 108  | 80 - 120    |

Eurofins Cleveland

# QC Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Method: 9056A - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 240-194646-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 593637**

**Client Sample ID: MW-16-03**  
**Prep Type: Total/NA**

| Analyte  | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|----------|---------------|------------------|-------------|------------|---------------|------|---|------|-------------|-----|-----------|
| Chloride | 42            |                  | 50.0        | 90.6       |               | mg/L |   | 98   | 80 - 120    | 0   | 15        |
| Fluoride | 0.29          |                  | 2.50        | 2.99       |               | mg/L |   | 108  | 80 - 120    | 0   | 15        |
| Sulfate  | 1.0           | U                | 50.0        | 53.9       |               | mg/L |   | 108  | 80 - 120    | 0   | 15        |

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 240-593567/1**  
**Matrix: Water**  
**Analysis Batch: 593567**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte                | MB Result | MB Qualifier | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------|-----------|--------------|----|------|---|----------|----------------|---------|
| Total Dissolved Solids | 10        | U            | 10 | mg/L |   |          | 11/06/23 10:07 | 1       |

**Lab Sample ID: LCS 240-593567/2**  
**Matrix: Water**  
**Analysis Batch: 593567**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte                | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------------------|-------------|------------|---------------|------|---|------|-------------|
| Total Dissolved Solids | 336         | 324        |               | mg/L |   | 96   | 80 - 120    |

**Lab Sample ID: MB 240-593630/1**  
**Matrix: Water**  
**Analysis Batch: 593630**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte                | MB Result | MB Qualifier | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------|-----------|--------------|----|------|---|----------|----------------|---------|
| Total Dissolved Solids | 10        | U            | 10 | mg/L |   |          | 11/06/23 15:22 | 1       |

**Lab Sample ID: LCS 240-593630/2**  
**Matrix: Water**  
**Analysis Batch: 593630**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte                | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------------------|-------------|------------|---------------|------|---|------|-------------|
| Total Dissolved Solids | 336         | 315        |               | mg/L |   | 94   | 80 - 120    |



# QC Association Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Metals

### Prep Batch: 593395

| Lab Sample ID       | Client Sample ID   | Prep Type         | Matrix | Method | Prep Batch |
|---------------------|--------------------|-------------------|--------|--------|------------|
| 240-194646-1        | MW-16-01           | Total Recoverable | Water  | 3005A  |            |
| 240-194646-2        | MW-16-02           | Total Recoverable | Water  | 3005A  |            |
| 240-194646-3        | MW-16-03           | Total Recoverable | Water  | 3005A  |            |
| 240-194646-4        | MW-17-06           | Total Recoverable | Water  | 3005A  |            |
| 240-194646-5        | MW-17-07           | Total Recoverable | Water  | 3005A  |            |
| 240-194646-6        | DUP-01             | Total Recoverable | Water  | 3005A  |            |
| MB 240-593395/1-A   | Method Blank       | Total Recoverable | Water  | 3005A  |            |
| LCS 240-593395/27-A | Lab Control Sample | Total Recoverable | Water  | 3005A  |            |
| LCS 240-593395/2-A  | Lab Control Sample | Total Recoverable | Water  | 3005A  |            |
| 240-194646-6 MS     | DUP-01             | Total Recoverable | Water  | 3005A  |            |
| 240-194646-6 MSD    | DUP-01             | Total Recoverable | Water  | 3005A  |            |

### Analysis Batch: 593675

| Lab Sample ID      | Client Sample ID   | Prep Type         | Matrix | Method | Prep Batch |
|--------------------|--------------------|-------------------|--------|--------|------------|
| 240-194646-1       | MW-16-01           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194646-2       | MW-16-02           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194646-3       | MW-16-03           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194646-4       | MW-17-06           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194646-5       | MW-17-07           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194646-6       | DUP-01             | Total Recoverable | Water  | 6010D  | 593395     |
| MB 240-593395/1-A  | Method Blank       | Total Recoverable | Water  | 6010D  | 593395     |
| LCS 240-593395/2-A | Lab Control Sample | Total Recoverable | Water  | 6010D  | 593395     |

### Analysis Batch: 593834

| Lab Sample ID       | Client Sample ID   | Prep Type         | Matrix | Method | Prep Batch |
|---------------------|--------------------|-------------------|--------|--------|------------|
| 240-194646-1        | MW-16-01           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-2        | MW-16-02           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-3        | MW-16-03           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-4        | MW-17-06           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-5        | MW-17-07           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-6        | DUP-01             | Total Recoverable | Water  | 6020B  | 593395     |
| MB 240-593395/1-A   | Method Blank       | Total Recoverable | Water  | 6020B  | 593395     |
| LCS 240-593395/27-A | Lab Control Sample | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-6 MS     | DUP-01             | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-6 MSD    | DUP-01             | Total Recoverable | Water  | 6020B  | 593395     |

### Analysis Batch: 593998

| Lab Sample ID    | Client Sample ID | Prep Type         | Matrix | Method | Prep Batch |
|------------------|------------------|-------------------|--------|--------|------------|
| 240-194646-1     | MW-16-01         | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-2     | MW-16-02         | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-3     | MW-16-03         | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-4     | MW-17-06         | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-5     | MW-17-07         | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-6     | DUP-01           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-6 MS  | DUP-01           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194646-6 MSD | DUP-01           | Total Recoverable | Water  | 6020B  | 593395     |

# QC Association Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## General Chemistry

### Analysis Batch: 593567

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method   | Prep Batch |
|------------------|--------------------|-----------|--------|----------|------------|
| 240-194646-1     | MW-16-01           | Total/NA  | Water  | SM 2540C |            |
| 240-194646-6     | DUP-01             | Total/NA  | Water  | SM 2540C |            |
| MB 240-593567/1  | Method Blank       | Total/NA  | Water  | SM 2540C |            |
| LCS 240-593567/2 | Lab Control Sample | Total/NA  | Water  | SM 2540C |            |

### Analysis Batch: 593630

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method   | Prep Batch |
|------------------|--------------------|-----------|--------|----------|------------|
| 240-194646-2     | MW-16-02           | Total/NA  | Water  | SM 2540C |            |
| 240-194646-3     | MW-16-03           | Total/NA  | Water  | SM 2540C |            |
| 240-194646-4     | MW-17-06           | Total/NA  | Water  | SM 2540C |            |
| 240-194646-5     | MW-17-07           | Total/NA  | Water  | SM 2540C |            |
| MB 240-593630/1  | Method Blank       | Total/NA  | Water  | SM 2540C |            |
| LCS 240-593630/2 | Lab Control Sample | Total/NA  | Water  | SM 2540C |            |

### Analysis Batch: 593637

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|------------------|--------------------|-----------|--------|--------|------------|
| 240-194646-1     | MW-16-01           | Total/NA  | Water  | 9056A  |            |
| 240-194646-1     | MW-16-01           | Total/NA  | Water  | 9056A  |            |
| 240-194646-2     | MW-16-02           | Total/NA  | Water  | 9056A  |            |
| 240-194646-2     | MW-16-02           | Total/NA  | Water  | 9056A  |            |
| 240-194646-3     | MW-16-03           | Total/NA  | Water  | 9056A  |            |
| 240-194646-4     | MW-17-06           | Total/NA  | Water  | 9056A  |            |
| 240-194646-4     | MW-17-06           | Total/NA  | Water  | 9056A  |            |
| 240-194646-5     | MW-17-07           | Total/NA  | Water  | 9056A  |            |
| 240-194646-5     | MW-17-07           | Total/NA  | Water  | 9056A  |            |
| 240-194646-6     | DUP-01             | Total/NA  | Water  | 9056A  |            |
| 240-194646-6     | DUP-01             | Total/NA  | Water  | 9056A  |            |
| MB 240-593637/3  | Method Blank       | Total/NA  | Water  | 9056A  |            |
| LCS 240-593637/4 | Lab Control Sample | Total/NA  | Water  | 9056A  |            |
| 240-194646-3 MS  | MW-16-03           | Total/NA  | Water  | 9056A  |            |
| 240-194646-3 MSD | MW-16-03           | Total/NA  | Water  | 9056A  |            |

# Lab Chronicle

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-194646-1**

**Date Collected: 10/30/23 09:32**

**Matrix: Water**

**Date Received: 11/02/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:53       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:22       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593998       | AJC     | EET CLE | 11/08/23 20:07       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 20:39       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 21:01       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593567       | QUY8    | EET CLE | 11/06/23 10:07       |

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-194646-2**

**Date Collected: 10/30/23 13:58**

**Matrix: Water**

**Date Received: 11/02/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:57       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:24       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593998       | AJC     | EET CLE | 11/08/23 20:14       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 19:56       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 20:17       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593630       | QUY8    | EET CLE | 11/06/23 15:22       |

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-194646-3**

**Date Collected: 10/30/23 13:20**

**Matrix: Water**

**Date Received: 11/02/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 05:02       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:27       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593998       | AJC     | EET CLE | 11/08/23 20:17       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 12:20       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593630       | QUY8    | EET CLE | 11/06/23 15:22       |

# Lab Chronicle

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

**Client Sample ID: MW-17-06**

**Lab Sample ID: 240-194646-4**

**Date Collected: 10/30/23 10:38**

**Matrix: Water**

**Date Received: 11/02/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC           | EET CLE | 11/07/23 05:06       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT           | EET CLE | 11/07/23 17:29       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593998       | AJC           | EET CLE | 11/08/23 20:19       |
| Total/NA          | Analysis   | 9056A        |     | 2               | 593637       | JWW           | EET CLE | 11/07/23 17:46       |
| Total/NA          | Analysis   | 9056A        |     | 20              | 593637       | JWW           | EET CLE | 11/07/23 18:07       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593630       | QUY8          | EET CLE | 11/06/23 15:22       |

**Client Sample ID: MW-17-07**

**Lab Sample ID: 240-194646-5**

**Date Collected: 10/30/23 11:30**

**Matrix: Water**

**Date Received: 11/02/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC           | EET CLE | 11/07/23 05:19       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT           | EET CLE | 11/07/23 17:32       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593998       | AJC           | EET CLE | 11/08/23 20:22       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 593637       | JWW           | EET CLE | 11/07/23 17:02       |
| Total/NA          | Analysis   | 9056A        |     | 25              | 593637       | JWW           | EET CLE | 11/07/23 17:24       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593630       | QUY8          | EET CLE | 11/06/23 15:22       |

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-194646-6**

**Date Collected: 10/30/23 00:00**

**Matrix: Water**

**Date Received: 11/02/23 08:00**

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC           | EET CLE | 11/07/23 05:24       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT           | EET CLE | 11/07/23 17:34       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC           | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593998       | AJC           | EET CLE | 11/08/23 20:24       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW           | EET CLE | 11/07/23 16:19       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 593637       | JWW           | EET CLE | 11/07/23 16:41       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593567       | QUY8          | EET CLE | 11/06/23 10:07       |

**Laboratory References:**

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

# Accreditation/Certification Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194646-1

## Laboratory: Eurofins Cleveland

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

| Authority             | Program | Identification Number | Expiration Date |
|-----------------------|---------|-----------------------|-----------------|
| California            | State   | 2927                  | 02-27-24        |
| Georgia               | State   | 4062                  | 02-27-24        |
| Illinois              | NELAP   | 200004                | 07-31-24        |
| Iowa                  | State   | 421                   | 06-01-25        |
| Kentucky (UST)        | State   | 112225                | 02-28-24        |
| Kentucky (WW)         | State   | KY98016               | 12-31-23        |
| Michigan              | State   | 9135                  | 02-27-24        |
| Minnesota             | NELAP   | 039-999-348           | 12-31-23        |
| Minnesota (Petrofund) | State   | 3506                  | 08-01-23 *      |
| New Jersey            | NELAP   | OH001                 | 07-01-24        |
| New York              | NELAP   | 10975                 | 04-02-24        |
| Ohio                  | State   | 8303                  | 02-27-24        |
| Ohio VAP              | State   | ORELAP 4062           | 02-27-24        |
| Oregon                | NELAP   | 4062                  | 11-27-23        |
| Pennsylvania          | NELAP   | 68-00340              | 08-31-24        |
| Texas                 | NELAP   | T104704517-22-19      | 08-31-24        |
| Virginia              | NELAP   | 460175                | 09-14-24        |
| West Virginia DEP     | State   | 210                   | 12-31-23        |

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.





**Eurofins - Cleveland Sample Receipt Form/Narrative**  
**Barberton Facility**


Login #: 194646

Client TRC Site Name \_\_\_\_\_ Cooler unpacked by: Rachelle Haider  
 Cooler Received on 11-2-23 Opened on 11-2-23  
 FedEx: 1<sup>st</sup> Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

**Receipt After-hours:** Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

Eurofins Cooler # EC Foam Box \_\_\_\_\_ Client Cooler \_\_\_\_\_ Box \_\_\_\_\_ Other \_\_\_\_\_  
 Packing material used: Bubble Wrap \_\_\_\_\_ Foam Plastic Bag None Other \_\_\_\_\_  
 COOLANT: Wet Ice Blue Ice \_\_\_\_\_ Dry Ice \_\_\_\_\_ Water \_\_\_\_\_ None \_\_\_\_\_

1. Cooler temperature upon receipt \_\_\_\_\_  See Multiple Cooler Form  
 IR GUN # 22 (CF 1.1 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
  - Were the seals on the outside of the cooler(s) signed & dated?  Yes  No  NA
  - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No  NA
  - Were tamper/custody seals intact and uncompromised?  Yes  No  NA
- 3. Shippers' packing slip attached to the cooler(s)?  Yes  No
- 4. Did custody papers accompany the sample(s)?  Yes  No
- 5. Were the custody papers relinquished & signed in the appropriate place?  Yes  No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No
- 7. Did all bottles arrive in good condition (Unbroken)?  Yes  No
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?  Yes  No
- 9. For each sample, does the COC specify preservatives  (Y/N), # of containers  (Y/N), and sample type of grab/comp  (Y/N)?
- 10. Were correct bottle(s) used for the test(s) indicated?  Yes  No
- 11. Sufficient quantity received to perform indicated analyses?  Yes  No
- 12. Are these work share samples and all listed on the COC?  Yes  No
- If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt?  Yes  No  NA pH Strip Lot# HC316719
- 14. Were VOAs on the COC?  Yes  No  NA
- 15. Were air bubbles >6 mm in any VOA vials?  Yes  No  NA  ← Larger than this.
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_  Yes  No
- 17. Was a LL Hg or Me Hg trip blank present? \_\_\_\_\_  Yes  No

**Tests that are not checked for pH by Receiving:**

VOAs  
 Oil and Grease  
 TOC

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

**18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES**  additional next page Samples processed by: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**19. SAMPLE CONDITION**  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

**20. SAMPLE PRESERVATION**  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_  
 VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_



- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Temperature readings: \_\_\_\_\_

| <u>Client Sample ID</u> | <u>Lab ID</u>  | <u>Container Type</u>            | <u>Container</u> |             | <u>Preservative</u> |              |
|-------------------------|----------------|----------------------------------|------------------|-------------|---------------------|--------------|
|                         |                |                                  | <u>pH</u>        | <u>Temp</u> | <u>Added (mls)</u>  | <u>Lot #</u> |
| MW-16-01                | 240-194646-C-1 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-194646-C-2 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-194646-C-3 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-06                | 240-194646-C-4 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-07                | 240-194646-C-5 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-194646-C-6 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |



# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Vincent Buening  
TRC Environmental Corporation.  
1540 Eisenhower Place  
Ann Arbor, Michigan 48108-7080

Generated 12/7/2023 1:38:15 PM

## JOB DESCRIPTION

CCR DTE River Rouge Power Plant

## JOB NUMBER

240-194644-1

# Eurofins Cleveland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



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12/7/2023 1:38:15 PM

Authorized for release by  
Kris Brooks, Project Manager II  
[Kris.Brooks@et.eurofinsus.com](mailto:Kris.Brooks@et.eurofinsus.com)  
(330)966-9790



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# Definitions/Glossary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Qualifiers

### Rad

| Qualifier | Qualifier Description                           |
|-----------|---|
| U         | Result is less than the sample detection limit. |

## Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |
|----------------|---|
| α              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |
| %R             | Percent Recovery  |
| CFL            | Contains Free Liquid  |
| CFU            | Colony Forming Unit   |
| CNF            | Contains No Free Liquid   |
| DER            | Duplicate Error Ratio (normalized absolute difference)  |
| Dil Fac        | Dilution Factor   |
| DL             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MCL            | EPA recommended "Maximum Contaminant Level"   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| MDL            | Method Detection Limit  |
| ML             | Minimum Level (Dioxin)  |
| MPN            | Most Probable Number  |
| MQL            | Method Quantitation Limit   |
| NC             | Not Calculated  |
| ND             | Not Detected at the reporting limit (or MDL or EDL if shown)  |
| NEG            | Negative / Absent   |
| POS            | Positive / Present  |
| PQL            | Practical Quantitation Limit  |
| PRES           | Presumptive   |
| QC             | Quality Control   |
| RER            | Relative Error Ratio (Radiochemistry)   |
| RL             | Reporting Limit or Requested Limit (Radiochemistry)   |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                        |
| TEF            | Toxicity Equivalent Factor (Dioxin)   |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)   |
| TNTC           | Too Numerous To Count   |

# Case Narrative

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Job ID: 240-194644-1**

**Laboratory: Eurofins Cleveland**

## Narrative

### Job Narrative 240-194644-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

### Receipt

The samples were received on 11/2/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.2°C, 1.3°C, 1.3°C and 1.9°C

### Gas Flow Proportional Counter

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### Rad

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



# Method Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

| Method      | Method Description                                     | Protocol | Laboratory |
|-------------|--|----------|------------|
| 9315        | Radium-226 (GFPC)                                      | SW846    | EET SL     |
| 9320        | Radium-228 (GFPC)                                      | SW846    | EET SL     |
| Ra226_Ra228 | Combined Radium-226 and Radium-228                     | TAL-STL  | EET SL     |
| PrecSep_0   | Preparation, Precipitate Separation                    | None     | EET SL     |
| PrecSep-21  | Preparation, Precipitate Separation (21-Day In-Growth) | None     | EET SL     |

**Protocol References:**

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

**Laboratory References:**

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       |
|---------------|------------------|--------|----------------|----------------|
| 240-194644-1  | MW-16-01         | Water  | 10/30/23 09:32 | 11/02/23 08:00 |
| 240-194644-2  | MW-16-02         | Water  | 10/30/23 13:58 | 11/02/23 08:00 |
| 240-194644-3  | MW-16-03         | Water  | 10/30/23 13:20 | 11/02/23 08:00 |
| 240-194644-4  | MW-17-06         | Water  | 10/30/23 10:38 | 11/02/23 08:00 |
| 240-194644-5  | MW-17-07         | Water  | 10/30/23 11:30 | 11/02/23 08:00 |
| 240-194644-6  | DUP-01           | Water  | 10/30/23 00:00 | 11/02/23 08:00 |

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# Detection Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-194644-1**

No Detections.

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-194644-2**

No Detections.

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-194644-3**

No Detections.

**Client Sample ID: MW-17-06**

**Lab Sample ID: 240-194644-4**

No Detections.

**Client Sample ID: MW-17-07**

**Lab Sample ID: 240-194644-5**

No Detections.

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-194644-6**

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland



# Client Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-16-01**

**Lab Sample ID: 240-194644-1**

Date Collected: 10/30/23 09:32

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.138  | U         | 0.176                       | 0.177                       | 1.00 | 0.293 | pCi/L | 11/07/23 10:43 | 12/06/23 19:22 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 88.9   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:43 | 12/06/23 19:22 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 0.258  | U         | 0.296                       | 0.297                       | 1.00 | 0.485 | pCi/L | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 88.9   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Y Carrier  | 83.0   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium 226<br>+ 228 | 0.396  | U         | 0.344                       | 0.346                       | 5.00 | 0.485 | pCi/L |          | 12/06/23 16:21 | 1       |



# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-16-02**

**Lab Sample ID: 240-194644-2**

Date Collected: 10/30/23 13:58

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.454  |           | 0.225                       | 0.229                       | 1.00 | 0.282 | pCi/L | 11/07/23 10:43 | 12/06/23 19:22 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 89.6   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:43 | 12/06/23 19:22 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 1.00   |           | 0.427                       | 0.437                       | 1.00 | 0.578 | pCi/L | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 89.6   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Y Carrier  | 85.2   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 1.45   |           | 0.483                       | 0.493                       | 5.00 | 0.578 | pCi/L |          | 12/06/23 16:21 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-16-03**

**Lab Sample ID: 240-194644-3**

Date Collected: 10/30/23 13:20

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.0664 | U         | 0.155                       | 0.155                       | 1.00 | 0.286 | pCi/L | 11/07/23 10:43 | 12/06/23 19:22 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 89.4   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:43 | 12/06/23 19:22 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 0.574  | U         | 0.416                       | 0.419                       | 1.00 | 0.627 | pCi/L | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 89.4   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Y Carrier  | 84.1   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 0.641  |           | 0.444                       | 0.447                       | 5.00 | 0.627 | pCi/L |          | 12/06/23 16:21 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-17-06**

**Lab Sample ID: 240-194644-4**

Date Collected: 10/30/23 10:38

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte           | Result      | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|-------------------|-------------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| <b>Radium-226</b> | <b>1.13</b> |           | 0.306                       | 0.323                       | 1.00 | 0.300 | pCi/L | 11/07/23 10:43 | 12/06/23 19:22 | 1       |
| Carrier           | %Yield      | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier        | 93.1        |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:43 | 12/06/23 19:22 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte           | Result      | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|-------------------|-------------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| <b>Radium-228</b> | <b>2.03</b> |           | 0.449                       | 0.486                       | 1.00 | 0.408 | pCi/L | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Carrier           | %Yield      | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier        | 93.1        |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Y Carrier         | 88.6        |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                              | Result      | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|--------------------------------------|-------------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| <b>Combined Radium<br/>226 + 228</b> | <b>3.17</b> |           | 0.543                       | 0.584                       | 5.00 | 0.408 | pCi/L |          | 12/06/23 16:21 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-17-07**

**Lab Sample ID: 240-194644-5**

Date Collected: 10/30/23 11:30

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.420  |           | 0.286                       | 0.289                       | 1.00 | 0.416 | pCi/L | 11/07/23 10:43 | 12/06/23 19:22 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 92.8   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:43 | 12/06/23 19:22 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 0.483  | U         | 0.361                       | 0.364                       | 1.00 | 0.544 | pCi/L | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 92.8   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Y Carrier  | 89.0   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 0.904  |           | 0.461                       | 0.465                       | 5.00 | 0.544 | pCi/L |          | 12/06/23 16:21 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-194644-6**

Date Collected: 10/30/23 00:00

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 9315 - Radium-226 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-226 | 0.0835 | U         | 0.204                       | 0.204                       | 1.00 | 0.368 | pCi/L | 11/07/23 10:43 | 12/06/23 19:18 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 85.7   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:43 | 12/06/23 19:18 | 1       |

**Method: SW846 9320 - Radium-228 (GFPC)**

| Analyte    | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------------|----------------|---------|
| Radium-228 | 1.25   |           | 0.528                       | 0.540                       | 1.00 | 0.683 | pCi/L | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Carrier    | %Yield | Qualifier | Limits                      |                             |      |       |       | Prepared       | Analyzed       | Dil Fac |
| Ba Carrier | 85.7   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |
| Y Carrier  | 84.5   |           | 30 - 110                    |                             |      |       |       | 11/07/23 10:46 | 12/05/23 11:07 | 1       |

**Method: TAL-STL Ra226\_Ra228 - Combined Radium-226 and Radium-228**

| Analyte                      | Result | Qualifier | Count<br>Uncert.<br>(2σ+/-) | Total<br>Uncert.<br>(2σ+/-) | RL   | MDC   | Unit  | Prepared | Analyzed       | Dil Fac |
|------------------------------|--------|-----------|-----------------------------|-----------------------------|------|-------|-------|----------|----------------|---------|
| Combined Radium<br>226 + 228 | 1.33   |           | 0.566                       | 0.577                       | 5.00 | 0.683 | pCi/L |          | 12/06/23 16:21 | 1       |

# Tracer/Carrier Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Method: 9315 - Radium-226 (GFPC)

Matrix: Water

Prep Type: Total/NA

|                    |                    | Percent Yield (Acceptance Limits) |  |
|--------------------|--------------------|-----------------------------------|--|
| Lab Sample ID      | Client Sample ID   | Ba<br>(30-110)                    |  |
| 240-194644-1       | MW-16-01           | 88.9                              |  |
| 240-194644-1 DU    | MW-16-01           | 91.4                              |  |
| 240-194644-2       | MW-16-02           | 89.6                              |  |
| 240-194644-3       | MW-16-03           | 89.4                              |  |
| 240-194644-4       | MW-17-06           | 93.1                              |  |
| 240-194644-5       | MW-17-07           | 92.8                              |  |
| 240-194644-6       | DUP-01             | 85.7                              |  |
| LCS 160-635672/2-A | Lab Control Sample | 90.1                              |  |
| MB 160-635672/1-A  | Method Blank       | 96.8                              |  |

**Tracer/Carrier Legend**  
Ba = Ba Carrier

## Method: 9320 - Radium-228 (GFPC)

Matrix: Water

Prep Type: Total/NA

|                    |                    | Percent Yield (Acceptance Limits) |               |
|--------------------|--------------------|-----------------------------------|---------------|
| Lab Sample ID      | Client Sample ID   | Ba<br>(30-110)                    | Y<br>(30-110) |
| 240-194644-1       | MW-16-01           | 88.9                              | 83.0          |
| 240-194644-1 DU    | MW-16-01           | 91.4                              | 86.4          |
| 240-194644-2       | MW-16-02           | 89.6                              | 85.2          |
| 240-194644-3       | MW-16-03           | 89.4                              | 84.1          |
| 240-194644-4       | MW-17-06           | 93.1                              | 88.6          |
| 240-194644-5       | MW-17-07           | 92.8                              | 89.0          |
| 240-194644-6       | DUP-01             | 85.7                              | 84.5          |
| LCS 160-635673/2-A | Lab Control Sample | 90.1                              | 87.9          |
| MB 160-635673/1-A  | Method Blank       | 96.8                              | 86.7          |

**Tracer/Carrier Legend**  
Ba = Ba Carrier  
Y = Y Carrier

# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-635672/1-A**  
**Matrix: Water**  
**Analysis Batch: 639677**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 635672**

| Analyte    | MB        |              | Count           | Total           | RL             | MDC            | Unit    | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|-----------------|-----------------|----------------|----------------|---------|----------------|----------------|---------|
|            | Result    | MB Qualifier | Uncert. (2σ+/-) | Uncert. (2σ+/-) |                |                |         |                |                |         |
| Radium-226 | -0.02202  | U            | 0.0980          | 0.0981          | 1.00           | 0.216          | pCi/L   | 11/07/23 10:43 | 12/06/23 19:22 | 1       |
| Carrier    | MB %Yield | MB Qualifier | Limits          |                 | Prepared       | Analyzed       | Dil Fac |                |                |         |
| Ba Carrier | 96.8      |              | 30 - 110        |                 | 11/07/23 10:43 | 12/06/23 19:22 | 1       |                |                |         |

**Lab Sample ID: LCS 160-635672/2-A**  
**Matrix: Water**  
**Analysis Batch: 639677**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 635672**

| Analyte    | Spike Added | LCS Result    | LCS Qual | Total           | RL   | MDC   | Unit  | %Rec | %Rec Limits |
|------------|-------------|---------------|----------|-----------------|------|-------|-------|------|-------------|
|            |             |               |          | Uncert. (2σ+/-) |      |       |       |      |             |
| Radium-226 | 11.3        | 10.34         |          | 1.24            | 1.00 | 0.221 | pCi/L | 91   | 75 - 125    |
| Carrier    | LCS %Yield  | LCS Qualifier | Limits   |                 |      |       |       |      |             |
| Ba Carrier | 90.1        |               | 30 - 110 |                 |      |       |       |      |             |

**Lab Sample ID: 240-194644-1 DU**  
**Matrix: Water**  
**Analysis Batch: 639677**

**Client Sample ID: MW-16-01**  
**Prep Type: Total/NA**  
**Prep Batch: 635672**

| Analyte    | Sample    |              | DU       |         | Total           | RL   | MDC   | Unit  | RER  | RER Limit |
|------------|-----------|--------------|----------|---------|-----------------|------|-------|-------|------|-----------|
|            | Result    | Sample Qual  | Result   | DU Qual | Uncert. (2σ+/-) |      |       |       |      |           |
| Radium-226 | 0.138     | U            | 0.1952   | U       | 0.153           | 1.00 | 0.219 | pCi/L | 0.17 | 1         |
| Carrier    | DU %Yield | DU Qualifier | Limits   |         |                 |      |       |       |      |           |
| Ba Carrier | 91.4      |              | 30 - 110 |         |                 |      |       |       |      |           |

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-635673/1-A**  
**Matrix: Water**  
**Analysis Batch: 639535**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 635673**

| Analyte    | MB        |              | Count           | Total           | RL             | MDC            | Unit    | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|-----------------|-----------------|----------------|----------------|---------|----------------|----------------|---------|
|            | Result    | MB Qualifier | Uncert. (2σ+/-) | Uncert. (2σ+/-) |                |                |         |                |                |         |
| Radium-228 | 0.2714    | U            | 0.252           | 0.253           | 1.00           | 0.398          | pCi/L   | 11/07/23 10:46 | 12/05/23 11:06 | 1       |
| Carrier    | MB %Yield | MB Qualifier | Limits          |                 | Prepared       | Analyzed       | Dil Fac |                |                |         |
| Ba Carrier | 96.8      |              | 30 - 110        |                 | 11/07/23 10:46 | 12/05/23 11:06 | 1       |                |                |         |
| Y Carrier  | 86.7      |              | 30 - 110        |                 | 11/07/23 10:46 | 12/05/23 11:06 | 1       |                |                |         |



# QC Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-635673/2-A

Matrix: Water

Analysis Batch: 639535

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 635673

| Analyte        | Spike Added   | LCS Result       | LCS Qual      | Total Uncert. (2σ+/-) | RL | MDC | Unit | %Rec | %Rec Limits |            |
|----------------|---------------|------------------|---------------|-----------------------|----|-----|------|------|-------------|------------|
|                |               |                  |               |                       |    |     |      |      |             | Radium-228 |
| <b>LCS LCS</b> |               |                  |               |                       |    |     |      |      |             |            |
| <b>Carrier</b> | <b>%Yield</b> | <b>Qualifier</b> | <b>Limits</b> |                       |    |     |      |      |             |            |
| Ba Carrier     | 90.1          |                  | 30 - 110      |                       |    |     |      |      |             |            |
| Y Carrier      | 87.9          |                  | 30 - 110      |                       |    |     |      |      |             |            |

Lab Sample ID: 240-194644-1 DU

Matrix: Water

Analysis Batch: 639535

Client Sample ID: MW-16-01

Prep Type: Total/NA

Prep Batch: 635673

| Analyte        | Sample Result | Sample Qual      | DU Result     | DU Qual | Total Uncert. (2σ+/-) | RL | MDC | Unit | RER | Limit |
|----------------|---------------|------------------|---------------|---------|-----------------------|----|-----|------|-----|-------|
|                |               |                  |               |         |                       |    |     |      |     |       |
| <b>DU DU</b>   |               |                  |               |         |                       |    |     |      |     |       |
| <b>Carrier</b> | <b>%Yield</b> | <b>Qualifier</b> | <b>Limits</b> |         |                       |    |     |      |     |       |
| Ba Carrier     | 91.4          |                  | 30 - 110      |         |                       |    |     |      |     |       |
| Y Carrier      | 86.4          |                  | 30 - 110      |         |                       |    |     |      |     |       |

# QC Association Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Rad

### Prep Batch: 635672

| Lab Sample ID      | Client Sample ID   | Prep Type | Matrix | Method     | Prep Batch |
|--------------------|--------------------|-----------|--------|------------|------------|
| 240-194644-1       | MW-16-01           | Total/NA  | Water  | PrecSep-21 |            |
| 240-194644-2       | MW-16-02           | Total/NA  | Water  | PrecSep-21 |            |
| 240-194644-3       | MW-16-03           | Total/NA  | Water  | PrecSep-21 |            |
| 240-194644-4       | MW-17-06           | Total/NA  | Water  | PrecSep-21 |            |
| 240-194644-5       | MW-17-07           | Total/NA  | Water  | PrecSep-21 |            |
| 240-194644-6       | DUP-01             | Total/NA  | Water  | PrecSep-21 |            |
| MB 160-635672/1-A  | Method Blank       | Total/NA  | Water  | PrecSep-21 |            |
| LCS 160-635672/2-A | Lab Control Sample | Total/NA  | Water  | PrecSep-21 |            |
| 240-194644-1 DU    | MW-16-01           | Total/NA  | Water  | PrecSep-21 |            |

### Prep Batch: 635673

| Lab Sample ID      | Client Sample ID   | Prep Type | Matrix | Method    | Prep Batch |
|--------------------|--------------------|-----------|--------|-----------|------------|
| 240-194644-1       | MW-16-01           | Total/NA  | Water  | PrecSep_0 |            |
| 240-194644-2       | MW-16-02           | Total/NA  | Water  | PrecSep_0 |            |
| 240-194644-3       | MW-16-03           | Total/NA  | Water  | PrecSep_0 |            |
| 240-194644-4       | MW-17-06           | Total/NA  | Water  | PrecSep_0 |            |
| 240-194644-5       | MW-17-07           | Total/NA  | Water  | PrecSep_0 |            |
| 240-194644-6       | DUP-01             | Total/NA  | Water  | PrecSep_0 |            |
| MB 160-635673/1-A  | Method Blank       | Total/NA  | Water  | PrecSep_0 |            |
| LCS 160-635673/2-A | Lab Control Sample | Total/NA  | Water  | PrecSep_0 |            |
| 240-194644-1 DU    | MW-16-01           | Total/NA  | Water  | PrecSep_0 |            |

# Lab Chronicle

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Client Sample ID: MW-16-01

Lab Sample ID: 240-194644-1

Date Collected: 10/30/23 09:32

Matrix: Water

Date Received: 11/02/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 635672       | KAC           | EET SL | 11/07/23 10:43       |
| Total/NA  | Analysis   | 9315         |     | 1               | 639677       | FLC           | EET SL | 12/06/23 19:22       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 635673       | KAC           | EET SL | 11/07/23 10:46       |
| Total/NA  | Analysis   | 9320         |     | 1               | 639535       | FLC           | EET SL | 12/05/23 11:07       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 639395       | EMH           | EET SL | 12/06/23 16:21       |

## Client Sample ID: MW-16-02

Lab Sample ID: 240-194644-2

Date Collected: 10/30/23 13:58

Matrix: Water

Date Received: 11/02/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 635672       | KAC           | EET SL | 11/07/23 10:43       |
| Total/NA  | Analysis   | 9315         |     | 1               | 639677       | FLC           | EET SL | 12/06/23 19:22       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 635673       | KAC           | EET SL | 11/07/23 10:46       |
| Total/NA  | Analysis   | 9320         |     | 1               | 639535       | FLC           | EET SL | 12/05/23 11:07       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 639395       | EMH           | EET SL | 12/06/23 16:21       |

## Client Sample ID: MW-16-03

Lab Sample ID: 240-194644-3

Date Collected: 10/30/23 13:20

Matrix: Water

Date Received: 11/02/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 635672       | KAC           | EET SL | 11/07/23 10:43       |
| Total/NA  | Analysis   | 9315         |     | 1               | 639677       | FLC           | EET SL | 12/06/23 19:22       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 635673       | KAC           | EET SL | 11/07/23 10:46       |
| Total/NA  | Analysis   | 9320         |     | 1               | 639535       | FLC           | EET SL | 12/05/23 11:07       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 639395       | EMH           | EET SL | 12/06/23 16:21       |

## Client Sample ID: MW-17-06

Lab Sample ID: 240-194644-4

Date Collected: 10/30/23 10:38

Matrix: Water

Date Received: 11/02/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 635672       | KAC           | EET SL | 11/07/23 10:43       |
| Total/NA  | Analysis   | 9315         |     | 1               | 639677       | FLC           | EET SL | 12/06/23 19:22       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 635673       | KAC           | EET SL | 11/07/23 10:46       |
| Total/NA  | Analysis   | 9320         |     | 1               | 639535       | FLC           | EET SL | 12/05/23 11:07       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 639395       | EMH           | EET SL | 12/06/23 16:21       |

# Lab Chronicle

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

**Client Sample ID: MW-17-07**

**Lab Sample ID: 240-194644-5**

Date Collected: 10/30/23 11:30

Matrix: Water

Date Received: 11/02/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 635672       | KAC           | EET SL | 11/07/23 10:43       |
| Total/NA  | Analysis   | 9315         |     | 1               | 639677       | FLC           | EET SL | 12/06/23 19:22       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 635673       | KAC           | EET SL | 11/07/23 10:46       |
| Total/NA  | Analysis   | 9320         |     | 1               | 639535       | FLC           | EET SL | 12/05/23 11:07       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 639395       | EMH           | EET SL | 12/06/23 16:21       |

**Client Sample ID: DUP-01**

**Lab Sample ID: 240-194644-6**

Date Collected: 10/30/23 00:00

Matrix: Water

Date Received: 11/02/23 08:00

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Batch Analyst | Lab    | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------------|--------|----------------------|
| Total/NA  | Prep       | PrecSep-21   |     |                 | 635672       | KAC           | EET SL | 11/07/23 10:43       |
| Total/NA  | Analysis   | 9315         |     | 1               | 639678       | FLC           | EET SL | 12/06/23 19:18       |
| Total/NA  | Prep       | PrecSep_0    |     |                 | 635673       | KAC           | EET SL | 11/07/23 10:46       |
| Total/NA  | Analysis   | 9320         |     | 1               | 639535       | FLC           | EET SL | 12/05/23 11:07       |
| Total/NA  | Analysis   | Ra226_Ra228  |     | 1               | 639395       | EMH           | EET SL | 12/06/23 16:21       |

**Laboratory References:**

EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Accreditation/Certification Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194644-1

## Laboratory: Eurofins St. Louis

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

| Authority                | Program                                 | Identification Number      | Expiration Date |
|--------------------------|---|----------------------------|-----------------|
| Alaska (UST)             | State                                   | 20-001                     | 05-06-25        |
| ANAB                     | Dept. of Defense ELAP                   | L2305                      | 04-06-25        |
| ANAB                     | Dept. of Energy                         | L2305.01                   | 04-06-25        |
| ANAB                     | ISO/IEC 17025                           | L2305                      | 04-06-25        |
| Arizona                  | State                                   | AZ0813                     | 12-08-23        |
| California               | Los Angeles County Sanitation Districts | 10259                      | 06-30-22 *      |
| California               | State                                   | 2886                       | 06-30-24        |
| Connecticut              | State                                   | PH-0241                    | 03-31-25        |
| Florida                  | NELAP                                   | E87689                     | 06-30-24        |
| HI - RadChem Recognition | State                                   | n/a                        | 06-30-24        |
| Illinois                 | NELAP                                   | 200023                     | 11-30-24        |
| Iowa                     | State                                   | 373                        | 12-01-24        |
| Kansas                   | NELAP                                   | E-10236                    | 10-31-24        |
| Kentucky (DW)            | State                                   | KY90125                    | 12-31-23        |
| Kentucky (WW)            | State                                   | KY90125 (Permit KY0004049) | 12-31-23        |
| Louisiana                | NELAP                                   | 04080                      | 06-30-22 *      |
| Louisiana (All)          | NELAP                                   | 04080                      | 06-30-24        |
| Louisiana (DW)           | State                                   | LA011                      | 12-31-23        |
| Maryland                 | State                                   | 310                        | 09-30-24        |
| Massachusetts            | State                                   | M-MO054                    | 06-30-24        |
| MI - RadChem Recognition | State                                   | 9005                       | 06-30-24        |
| Missouri                 | State                                   | 780                        | 06-30-25        |
| Nevada                   | State                                   | MO000542020-1              | 07-31-24        |
| New Jersey               | NELAP                                   | MO002                      | 06-30-24        |
| New Mexico               | State                                   | MO00054                    | 06-30-24        |
| New York                 | NELAP                                   | 11616                      | 03-31-24        |
| North Carolina (DW)      | State                                   | 29700                      | 07-31-24        |
| North Dakota             | State                                   | R-207                      | 06-30-24        |
| Oklahoma                 | NELAP                                   | 9997                       | 08-31-24        |
| Oregon                   | NELAP                                   | 4157                       | 09-01-24        |
| Pennsylvania             | NELAP                                   | 68-00540                   | 02-28-24        |
| South Carolina           | State                                   | 85002001                   | 06-30-24        |
| Texas                    | NELAP                                   | T104704193                 | 07-31-24        |
| US Fish & Wildlife       | US Federal Programs                     | 058448                     | 07-31-24        |
| USDA                     | US Federal Programs                     | P330-17-00028              | 05-18-26        |
| Utah                     | NELAP                                   | MO000542021-14             | 07-31-24        |
| Virginia                 | NELAP                                   | 10310                      | 06-15-25        |
| Washington               | State                                   | C592                       | 08-30-24        |
| West Virginia DEP        | State                                   | 381                        | 12-31-23        |

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Eurofins - Cleveland Sample Receipt Form/Narrative

Login #: 194644

Barberton Facility

Client TRC Site Name Cooler unpacked by: Rachelle Haidet
Cooler Received on 11-2-23 Opened on 11-2-23
FedEx: 1st Grd Exp UPS FAS Waypoint Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt IR GUN # 22 (CF+1.1 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
-Were the seals on the outside of the cooler(s) signed & dated?
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?
-Were tamper/custody seals intact and uncompromised?
3. Shippers' packing slip attached to the cooler(s)?
4. Did custody papers accompany the sample(s)?
5. Were the custody papers relinquished & signed in the appropriate place?
6. Was/were the person(s) who collected the samples clearly identified on the COC?
7. Did all bottles arrive in good condition (Unbroken)?
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated?
11. Sufficient quantity received to perform indicated analyses?
12. Are these work share samples and all listed on the COC?
13. Were all preserved sample(s) at the correct pH upon receipt?
14. Were VOAs on the COC?
15. Were air bubbles >6 mm in any VOA vials?
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #
17. Was a LL Hg or Me Hg trip blank present?

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by:

Blank lines for chain of custody and sample discrepancies.

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):
VOA Sample Preservation - Date/Time VOAs Frozen:





Temperature readings: \_\_\_\_\_

| <u>Client Sample ID</u> | <u>Lab ID</u>  | <u>Container Type</u>         | <u>Container</u> |             | <u>Preservative</u> |              |
|-------------------------|----------------|-------------------------------|------------------|-------------|---------------------|--------------|
|                         |                |                               | <u>pH</u>        | <u>Temp</u> | <u>Added (mls)</u>  | <u>Lot #</u> |
| MW-16-01                | 240-194644-A-1 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-01                | 240-194644-B-1 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-194644-A-2 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-02                | 240-194644-B-2 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-194644-A-3 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-16-03                | 240-194644-B-3 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-06                | 240-194644-A-4 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-06                | 240-194644-B-4 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-07                | 240-194644-A-5 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-07                | 240-194644-B-5 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-194644-A-6 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |
| DUP-01                  | 240-194644-B-6 | Plastic 1 liter - Nitric Acid | <2               | _____       | _____               | _____        |

## Login Sample Receipt Checklist

Client: TRC Environmental Corporation.

Job Number: 240-194644-1

**Login Number: 194644**

**List Number: 2**

**Creator: Pinette, Meadow L**

**List Source: Eurofins St. Louis**

**List Creation: 11/03/23 02:36 PM**

| Question   | Answer | Comment |
|--|--------|---------|
| Radioactivity wasn't checked or is <=/ background as measured by a survey meter. | True   |         |
| The cooler's custody seal, if present, is intact.                                | True   |         |
| Sample custody seals, if present, are intact.                                    | True   |         |
| The cooler or samples do not appear to have been compromised or tampered with.   | True   |         |
| Samples were received on ice.  | N/A    |         |
| Cooler Temperature is acceptable.  | True   |         |
| Cooler Temperature is recorded.  | True   |         |
| COC is present.  | True   |         |
| COC is filled out in ink and legible.  | True   |         |
| COC is filled out with all pertinent information.                                | True   |         |
| Is the Field Sampler's name present on COC?                                      | True   |         |
| There are no discrepancies between the containers received and the COC.          | True   |         |
| Samples are received within Holding Time (excluding tests with immediate HTs)    | True   |         |
| Sample containers have legible labels.   | True   |         |
| Containers are not broken or leaking.  | True   |         |
| Sample collection date/times are provided.                                       | True   |         |
| Appropriate sample containers are used.  | True   |         |
| Sample bottles are completely filled.  | True   |         |
| Sample Preservation Verified.  | True   |         |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True   |         |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").  | True   |         |
| Multiphasic samples are not present.   | True   |         |
| Samples do not require splitting or compositing.                                 | True   |         |
| Residual Chlorine Checked.   | N/A    |         |





# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Vincent Buening  
TRC Environmental Corporation.  
1540 Eisenhower Place  
Ann Arbor, Michigan 48108-7080

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## JOB DESCRIPTION

CCR DTE River Rouge Power Plant

## JOB NUMBER

240-194639-1

# Eurofins Cleveland

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

## Authorization



Authorized for release by  
Kris Brooks, Project Manager II  
[Kris.Brooks@et.eurofinsus.com](mailto:Kris.Brooks@et.eurofinsus.com)  
(330)966-9790

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Revision 2



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# Definitions/Glossary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Qualifiers

### Metals

| Qualifier | Qualifier Description                                    |
|-----------|--|
| U         | Indicates the analyte was analyzed for but not detected. |

### General Chemistry

| Qualifier | Qualifier Description                                    |
|-----------|--|
| U         | Indicates the analyte was analyzed for but not detected. |

## Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |
|----------------|---|
| ▫              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |
| %R             | Percent Recovery  |
| CFL            | Contains Free Liquid  |
| CFU            | Colony Forming Unit   |
| CNF            | Contains No Free Liquid   |
| DER            | Duplicate Error Ratio (normalized absolute difference)  |
| Dil Fac        | Dilution Factor   |
| DL             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MCL            | EPA recommended "Maximum Contaminant Level"   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| MDL            | Method Detection Limit  |
| ML             | Minimum Level (Dioxin)  |
| MPN            | Most Probable Number  |
| MQL            | Method Quantitation Limit   |
| NC             | Not Calculated  |
| ND             | Not Detected at the reporting limit (or MDL or EDL if shown)  |
| NEG            | Negative / Absent   |
| POS            | Positive / Present  |
| PQL            | Practical Quantitation Limit  |
| PRES           | Presumptive   |
| QC             | Quality Control   |
| RER            | Relative Error Ratio (Radiochemistry)   |
| RL             | Reporting Limit or Requested Limit (Radiochemistry)   |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                        |
| TEF            | Toxicity Equivalent Factor (Dioxin)   |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)   |
| TNTC           | Too Numerous To Count   |



# Case Narrative

Client: TRC Environmental Corporation.  
Project: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Job ID: 240-194639-1**

**Eurofins Cleveland**

## Job Narrative 240-194639-1

### REVISION

The report being provided is a revision of the original report sent on 11/14/2023. The report (revision 2) is being revised to remove results for samples marked as hold.

#### Report revision history

Revision 1 - 12/5/2023 - Reason - to report the data to the RL only.

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

### **Receipt**

The samples were received on 11/2/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.2°C, 1.3°C, 1.3°C and 1.9°C

### **Metals**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### **General Chemistry**

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Cleveland

# Method Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

| Method   | Method Description                                 | Protocol | Laboratory |
|----------|--|----------|------------|
| 6010D    | Metals (ICP)                                       | SW846    | EET CLE    |
| 6020B    | Metals (ICP/MS)                                    | SW846    | EET CLE    |
| 9056A    | Anions, Ion Chromatography                         | SW846    | EET CLE    |
| SM 2540C | Solids, Total Dissolved (TDS)                      | SM       | EET CLE    |
| 3005A    | Preparation, Total Recoverable or Dissolved Metals | SW846    | EET CLE    |

**Protocol References:**

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396



# Sample Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       |
|---------------|------------------|--------|----------------|----------------|
| 240-194639-1  | MW-16-04S        | Water  | 10/30/23 12:30 | 11/02/23 08:00 |
| 240-194639-2  | MW-17-05         | Water  | 10/31/23 10:05 | 11/02/23 08:00 |
| 240-194639-6  | MW-17-14         | Water  | 10/31/23 12:14 | 11/02/23 08:00 |
| 240-194639-7  | MW-17-15         | Water  | 10/31/23 11:32 | 11/02/23 08:00 |
| 240-194639-8  | MW-17-18         | Water  | 10/31/23 11:16 | 11/02/23 08:00 |
| 240-194639-10 | MW-17-20         | Water  | 10/31/23 12:40 | 11/02/23 08:00 |
| 240-194639-11 | DUP-02           | Water  | 10/31/23 00:00 | 11/02/23 08:00 |

1

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# Detection Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Client Sample ID: MW-16-04S

## Lab Sample ID: 240-194639-1

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 680    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 180    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 220000 |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 37     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Molybdenum             | 21     |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 99     |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Fluoride               | 0.62   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 620    |           | 5.0   | mg/L | 5       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 1100   |           | 20    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-05

## Lab Sample ID: 240-194639-2

| Analyte                | Result | Qualifier | RL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|------|------|---------|---|----------|----------------------|
| Boron                  | 570    |           | 100  | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 170    |           | 5.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 340000 |           | 1000 | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Cobalt                 | 1.0    |           | 1.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 43     |           | 8.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 700    |           | 10   | mg/L | 10      |   | 9056A    | Total/NA             |
| Fluoride               | 0.28   |           | 0.10 | mg/L | 2       |   | 9056A    | Total/NA             |
| Sulfate                | 540    |           | 10   | mg/L | 10      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 2400   |           | 40   | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-14

## Lab Sample ID: 240-194639-6

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 540    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 660    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 180000 |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 24     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 540    |           | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Fluoride               | 0.77   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 120    |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 1500   |           | 20    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-15

## Lab Sample ID: 240-194639-7

| Analyte | Result | Qualifier | RL  | Unit | Dil Fac | D | Method | Prep Type            |
|---------|--------|-----------|-----|------|---------|---|--------|----------------------|
| Boron   | 790    |           | 100 | ug/L | 1       |   | 6010D  | Total<br>Recoverable |
| Arsenic | 18     |           | 5.0 | ug/L | 1       |   | 6020B  | Total<br>Recoverable |

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

# Detection Summary

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Client Sample ID: MW-17-15 (Continued)

## Lab Sample ID: 240-194639-7

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Barium                 | 270    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 150000 |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 41     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Molybdenum             | 15     |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 340    |           | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Fluoride               | 0.81   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 220    |           | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 1100   |           | 20    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-18

## Lab Sample ID: 240-194639-8

| Analyte                | Result | Qualifier | RL    | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|-------|------|---------|---|----------|----------------------|
| Boron                  | 330    |           | 100   | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 130    |           | 5.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 210000 |           | 1000  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 19     |           | 8.0   | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 460    |           | 10    | mg/L | 10      |   | 9056A    | Total/NA             |
| Fluoride               | 0.32   |           | 0.050 | mg/L | 1       |   | 9056A    | Total/NA             |
| Sulfate                | 130    |           | 1.0   | mg/L | 1       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 1400   |           | 20    | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: MW-17-20

## Lab Sample ID: 240-194639-10

| Analyte                | Result | Qualifier | RL   | Unit | Dil Fac | D | Method   | Prep Type            |
|------------------------|--------|-----------|------|------|---------|---|----------|----------------------|
| Boron                  | 430    |           | 100  | ug/L | 1       |   | 6010D    | Total<br>Recoverable |
| Barium                 | 140    |           | 5.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Calcium                | 360000 |           | 1000 | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Lithium                | 30     |           | 8.0  | ug/L | 1       |   | 6020B    | Total<br>Recoverable |
| Chloride               | 1100   |           | 20   | mg/L | 20      |   | 9056A    | Total/NA             |
| Fluoride               | 0.25   |           | 0.10 | mg/L | 2       |   | 9056A    | Total/NA             |
| Sulfate                | 320    |           | 2.0  | mg/L | 2       |   | 9056A    | Total/NA             |
| Total Dissolved Solids | 2700   |           | 50   | mg/L | 1       |   | SM 2540C | Total/NA             |

## Client Sample ID: DUP-02

## Lab Sample ID: 240-194639-11

| Analyte | Result | Qualifier | RL   | Unit | Dil Fac | D | Method | Prep Type            |
|---------|--------|-----------|------|------|---------|---|--------|----------------------|
| Boron   | 580    |           | 100  | ug/L | 1       |   | 6010D  | Total<br>Recoverable |
| Barium  | 170    |           | 5.0  | ug/L | 1       |   | 6020B  | Total<br>Recoverable |
| Calcium | 340000 |           | 1000 | ug/L | 1       |   | 6020B  | Total<br>Recoverable |
| Lithium | 43     |           | 8.0  | ug/L | 1       |   | 6020B  | Total<br>Recoverable |

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

# Detection Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: DUP-02 (Continued)**

**Lab Sample ID: 240-194639-11**

| Analyte                | Result | Qualifier | RL   | Unit | Dil Fac | D | Method   | Prep Type |
|------------------------|--------|-----------|------|------|---------|---|----------|-----------|
| Chloride               | 740    |           | 10   | mg/L | 10      |   | 9056A    | Total/NA  |
| Fluoride               | 0.30   |           | 0.10 | mg/L | 2       |   | 9056A    | Total/NA  |
| Sulfate                | 560    |           | 10   | mg/L | 10      |   | 9056A    | Total/NA  |
| Total Dissolved Solids | 2500   |           | 40   | mg/L | 1       |   | SM 2540C | Total/NA  |

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland



# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: MW-16-04S**

**Lab Sample ID: 240-194639-1**

Date Collected: 10/30/23 12:30

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 680    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 03:38 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:44 | 1       |
| Barium     | 180    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:44 | 1       |
| Calcium    | 220000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 16:44 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:44 | 1       |
| Lithium    | 37     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:44 | 1       |
| Molybdenum | 21     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:44 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 99     |           | 1.0   | mg/L |   |          | 11/07/23 05:50 | 1       |
| Fluoride (SW846 9056A)            | 0.62   |           | 0.050 | mg/L |   |          | 11/07/23 05:50 | 1       |
| Sulfate (SW846 9056A)             | 620    |           | 5.0   | mg/L |   |          | 11/07/23 06:55 | 5       |
| Total Dissolved Solids (SM 2540C) | 1100   |           | 20    | mg/L |   |          | 11/06/23 15:22 | 1       |



# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: MW-17-05**

**Lab Sample ID: 240-194639-2**

Date Collected: 10/31/23 10:05

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 570    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 03:59 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:52 | 1       |
| Barium     | 170    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:52 | 1       |
| Calcium    | 340000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 16:52 | 1       |
| Cobalt     | 1.0    |           | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:52 | 1       |
| Lithium    | 43     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:52 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:52 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 700    |           | 10   | mg/L |   |          | 11/07/23 15:57 | 10      |
| Fluoride (SW846 9056A)            | 0.28   |           | 0.10 | mg/L |   |          | 11/07/23 15:36 | 2       |
| Sulfate (SW846 9056A)             | 540    |           | 10   | mg/L |   |          | 11/07/23 15:57 | 10      |
| Total Dissolved Solids (SM 2540C) | 2400   |           | 40   | mg/L |   |          | 11/06/23 10:07 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: MW-17-14**

**Lab Sample ID: 240-194639-6**

Date Collected: 10/31/23 12:14

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 540    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:25 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:02 | 1       |
| Barium     | 660    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:02 | 1       |
| Calcium    | 180000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:02 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:02 | 1       |
| Lithium    | 24     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:02 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:02 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 540    |           | 10    | mg/L |   |          | 11/07/23 11:59 | 10      |
| Fluoride (SW846 9056A)            | 0.77   |           | 0.050 | mg/L |   |          | 11/07/23 11:37 | 1       |
| Sulfate (SW846 9056A)             | 120    |           | 1.0   | mg/L |   |          | 11/07/23 11:37 | 1       |
| Total Dissolved Solids (SM 2540C) | 1500   |           | 20    | mg/L |   |          | 11/06/23 15:22 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: MW-17-15**

**Lab Sample ID: 240-194639-7**

Date Collected: 10/31/23 11:32

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 790    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:30 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 18     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:04 | 1       |
| Barium     | 270    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:04 | 1       |
| Calcium    | 150000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:04 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:04 | 1       |
| Lithium    | 41     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:04 | 1       |
| Molybdenum | 15     |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:04 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 340    |           | 10    | mg/L |   |          | 11/07/23 11:15 | 10      |
| Fluoride (SW846 9056A)            | 0.81   |           | 0.050 | mg/L |   |          | 11/07/23 10:10 | 1       |
| Sulfate (SW846 9056A)             | 220    |           | 10    | mg/L |   |          | 11/07/23 11:15 | 10      |
| Total Dissolved Solids (SM 2540C) | 1100   |           | 20    | mg/L |   |          | 11/06/23 10:07 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: MW-17-18**

**Lab Sample ID: 240-194639-8**

Date Collected: 10/31/23 11:16

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 330    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:34 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:07 | 1       |
| Barium     | 130    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:07 | 1       |
| Calcium    | 210000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:07 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:07 | 1       |
| Lithium    | 19     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:07 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:07 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|-------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 460    |           | 10    | mg/L |   |          | 11/07/23 09:49 | 10      |
| Fluoride (SW846 9056A)            | 0.32   |           | 0.050 | mg/L |   |          | 11/07/23 09:27 | 1       |
| Sulfate (SW846 9056A)             | 130    |           | 1.0   | mg/L |   |          | 11/07/23 09:27 | 1       |
| Total Dissolved Solids (SM 2540C) | 1400   |           | 20    | mg/L |   |          | 11/07/23 09:33 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: MW-17-20**

**Lab Sample ID: 240-194639-10**

Date Collected: 10/31/23 12:40

Matrix: Water

Date Received: 11/02/23 08:00

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 430    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:43 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:12 | 1       |
| Barium     | 140    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:12 | 1       |
| Calcium    | 360000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:12 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:12 | 1       |
| Lithium    | 30     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:12 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:12 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 1100   |           | 20   | mg/L |   |          | 11/11/23 16:38 | 20      |
| Fluoride (SW846 9056A)            | 0.25   |           | 0.10 | mg/L |   |          | 11/11/23 16:16 | 2       |
| Sulfate (SW846 9056A)             | 320    |           | 2.0  | mg/L |   |          | 11/11/23 16:16 | 2       |
| Total Dissolved Solids (SM 2540C) | 2700   |           | 50   | mg/L |   |          | 11/07/23 09:33 | 1       |

# Client Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

**Client Sample ID: DUP-02**  
**Date Collected: 10/31/23 00:00**  
**Date Received: 11/02/23 08:00**

**Lab Sample ID: 240-194639-11**  
**Matrix: Water**

**Method: SW846 6010D - Metals (ICP) - Total Recoverable**

| Analyte | Result | Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|--------|-----------|-----|------|---|----------------|----------------|---------|
| Boron   | 580    |           | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 04:48 | 1       |

**Method: SW846 6020B - Metals (ICP/MS) - Total Recoverable**

| Analyte    | Result | Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|--------|-----------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:14 | 1       |
| Barium     | 170    |           | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:14 | 1       |
| Calcium    | 340000 |           | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 17:14 | 1       |
| Cobalt     | 1.0    | U         | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:14 | 1       |
| Lithium    | 43     |           | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:14 | 1       |
| Molybdenum | 5.0    | U         | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 17:14 | 1       |

**General Chemistry**

| Analyte                           | Result | Qualifier | RL   | Unit | D | Prepared | Analyzed       | Dil Fac |
|-----------------------------------|--------|-----------|------|------|---|----------|----------------|---------|
| Chloride (SW846 9056A)            | 740    |           | 10   | mg/L |   |          | 11/07/23 07:39 | 10      |
| Fluoride (SW846 9056A)            | 0.30   |           | 0.10 | mg/L |   |          | 11/07/23 07:17 | 2       |
| Sulfate (SW846 9056A)             | 560    |           | 10   | mg/L |   |          | 11/07/23 07:39 | 10      |
| Total Dissolved Solids (SM 2540C) | 2500   |           | 40   | mg/L |   |          | 11/07/23 09:33 | 1       |

# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Method: 6010D - Metals (ICP)

**Lab Sample ID: MB 240-593395/1-A**  
**Matrix: Water**  
**Analysis Batch: 593675**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte | MB Result | MB Qualifier | RL  | Unit | D | Prepared       | Analyzed       | Dil Fac |
|---------|-----------|--------------|-----|------|---|----------------|----------------|---------|
| Boron   | 100       | U            | 100 | ug/L |   | 11/03/23 14:00 | 11/07/23 03:21 | 1       |

**Lab Sample ID: LCS 240-593395/2-A**  
**Matrix: Water**  
**Analysis Batch: 593675**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|-------------|------------|---------------|------|---|------|-------------|
| Boron   | 1000        | 1020       |               | ug/L |   | 102  | 80 - 120    |

**Lab Sample ID: 240-194639-1 MS**  
**Matrix: Water**  
**Analysis Batch: 593675**

**Client Sample ID: MW-16-04S**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|---------------|------------------|-------------|-----------|--------------|------|---|------|-------------|
| Boron   | 680           |                  | 1000        | 1710      |              | ug/L |   | 102  | 75 - 125    |

**Lab Sample ID: 240-194639-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 593675**

**Client Sample ID: MW-16-04S**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---------|---------------|------------------|-------------|------------|---------------|------|---|------|-------------|-----|-----------|
| Boron   | 680           |                  | 1000        | 1710       |               | ug/L |   | 102  | 75 - 125    | 0   | 20        |

## Method: 6020B - Metals (ICP/MS)

**Lab Sample ID: MB 240-593395/1-A**  
**Matrix: Water**  
**Analysis Batch: 593834**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte    | MB Result | MB Qualifier | RL   | Unit | D | Prepared       | Analyzed       | Dil Fac |
|------------|-----------|--------------|------|------|---|----------------|----------------|---------|
| Arsenic    | 5.0       | U            | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Barium     | 5.0       | U            | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Calcium    | 1000      | U            | 1000 | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Cobalt     | 1.0       | U            | 1.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Lithium    | 8.0       | U            | 8.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |
| Molybdenum | 5.0       | U            | 5.0  | ug/L |   | 11/03/23 14:00 | 11/07/23 16:39 | 1       |

**Lab Sample ID: LCS 240-593395/27-A**  
**Matrix: Water**  
**Analysis Batch: 593834**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 593395**

| Analyte    | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------|-------------|------------|---------------|------|---|------|-------------|
| Arsenic    | 1000        | 979        |               | ug/L |   | 98   | 80 - 120    |
| Barium     | 1000        | 956        |               | ug/L |   | 96   | 80 - 120    |
| Calcium    | 25000       | 24200      |               | ug/L |   | 97   | 80 - 120    |
| Cobalt     | 500         | 484        |               | ug/L |   | 97   | 80 - 120    |
| Lithium    | 500         | 496        |               | ug/L |   | 99   | 80 - 120    |
| Molybdenum | 500         | 482        |               | ug/L |   | 96   | 80 - 120    |

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# QC Sample Results

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 240-593637/3**  
**Matrix: Water**  
**Analysis Batch: 593637**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte  | MB MB  |           | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|----------|--------|-----------|-------|------|---|----------|----------------|---------|
|          | Result | Qualifier |       |      |   |          |                |         |
| Chloride | 1.0    | U         | 1.0   | mg/L |   |          | 11/07/23 02:35 | 1       |
| Fluoride | 0.050  | U         | 0.050 | mg/L |   |          | 11/07/23 02:35 | 1       |
| Sulfate  | 1.0    | U         | 1.0   | mg/L |   |          | 11/07/23 02:35 | 1       |

**Lab Sample ID: LCS 240-593637/4**  
**Matrix: Water**  
**Analysis Batch: 593637**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte  | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|----------|-------------|------------|---------------|------|---|------|-------------|
|          |             |            |               |      |   |      |             |
| Fluoride | 2.50        | 2.64       |               | mg/L |   | 106  | 90 - 110    |
| Sulfate  | 50.0        | 52.0       |               | mg/L |   | 104  | 90 - 110    |

**Lab Sample ID: MB 240-594086/3**  
**Matrix: Water**  
**Analysis Batch: 594086**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte  | MB MB  |           | RL    | Unit | D | Prepared | Analyzed       | Dil Fac |
|----------|--------|-----------|-------|------|---|----------|----------------|---------|
|          | Result | Qualifier |       |      |   |          |                |         |
| Chloride | 1.0    | U         | 1.0   | mg/L |   |          | 11/11/23 10:29 | 1       |
| Fluoride | 0.050  | U         | 0.050 | mg/L |   |          | 11/11/23 10:29 | 1       |
| Sulfate  | 1.0    | U         | 1.0   | mg/L |   |          | 11/11/23 10:29 | 1       |

**Lab Sample ID: LCS 240-594086/4**  
**Matrix: Water**  
**Analysis Batch: 594086**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte  | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|----------|-------------|------------|---------------|------|---|------|-------------|
|          |             |            |               |      |   |      |             |
| Fluoride | 2.50        | 2.67       |               | mg/L |   | 107  | 90 - 110    |
| Sulfate  | 50.0        | 52.6       |               | mg/L |   | 105  | 90 - 110    |

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 240-593567/1**  
**Matrix: Water**  
**Analysis Batch: 593567**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte                | MB MB  |           | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------|--------|-----------|----|------|---|----------|----------------|---------|
|                        | Result | Qualifier |    |      |   |          |                |         |
| Total Dissolved Solids | 10     | U         | 10 | mg/L |   |          | 11/06/23 10:07 | 1       |

**Lab Sample ID: LCS 240-593567/2**  
**Matrix: Water**  
**Analysis Batch: 593567**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|---------|-------------|------------|---------------|------|---|------|-------------|
|         |             |            |               |      |   |      |             |

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# QC Sample Results

Client: TRC Environmental Corporation.  
 Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

**Lab Sample ID: MB 240-593630/1**  
**Matrix: Water**  
**Analysis Batch: 593630**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte                | MB Result | MB Qualifier | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------|-----------|--------------|----|------|---|----------|----------------|---------|
| Total Dissolved Solids | 10        | U            | 10 | mg/L |   |          | 11/06/23 15:22 | 1       |

**Lab Sample ID: LCS 240-593630/2**  
**Matrix: Water**  
**Analysis Batch: 593630**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte                | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------------------|-------------|------------|---------------|------|---|------|-------------|
| Total Dissolved Solids | 336         | 315        |               | mg/L |   | 94   | 80 - 120    |

**Lab Sample ID: MB 240-593718/1**  
**Matrix: Water**  
**Analysis Batch: 593718**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

| Analyte                | MB Result | MB Qualifier | RL | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------|-----------|--------------|----|------|---|----------|----------------|---------|
| Total Dissolved Solids | 10        | U            | 10 | mg/L |   |          | 11/07/23 09:33 | 1       |

**Lab Sample ID: LCS 240-593718/2**  
**Matrix: Water**  
**Analysis Batch: 593718**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

| Analyte                | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits |
|------------------------|-------------|------------|---------------|------|---|------|-------------|
| Total Dissolved Solids | 336         | 324        |               | mg/L |   | 96   | 80 - 120    |

# QC Association Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Metals

### Prep Batch: 593395

| Lab Sample ID       | Client Sample ID   | Prep Type         | Matrix | Method | Prep Batch |
|---------------------|--------------------|-------------------|--------|--------|------------|
| 240-194639-1        | MW-16-04S          | Total Recoverable | Water  | 3005A  |            |
| 240-194639-2        | MW-17-05           | Total Recoverable | Water  | 3005A  |            |
| 240-194639-6        | MW-17-14           | Total Recoverable | Water  | 3005A  |            |
| 240-194639-7        | MW-17-15           | Total Recoverable | Water  | 3005A  |            |
| 240-194639-8        | MW-17-18           | Total Recoverable | Water  | 3005A  |            |
| 240-194639-10       | MW-17-20           | Total Recoverable | Water  | 3005A  |            |
| 240-194639-11       | DUP-02             | Total Recoverable | Water  | 3005A  |            |
| MB 240-593395/1-A   | Method Blank       | Total Recoverable | Water  | 3005A  |            |
| LCS 240-593395/27-A | Lab Control Sample | Total Recoverable | Water  | 3005A  |            |
| LCS 240-593395/2-A  | Lab Control Sample | Total Recoverable | Water  | 3005A  |            |
| 240-194639-1 MS     | MW-16-04S          | Total Recoverable | Water  | 3005A  |            |
| 240-194639-1 MSD    | MW-16-04S          | Total Recoverable | Water  | 3005A  |            |

### Analysis Batch: 593675

| Lab Sample ID      | Client Sample ID   | Prep Type         | Matrix | Method | Prep Batch |
|--------------------|--------------------|-------------------|--------|--------|------------|
| 240-194639-1       | MW-16-04S          | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-2       | MW-17-05           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-6       | MW-17-14           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-7       | MW-17-15           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-8       | MW-17-18           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-10      | MW-17-20           | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-11      | DUP-02             | Total Recoverable | Water  | 6010D  | 593395     |
| MB 240-593395/1-A  | Method Blank       | Total Recoverable | Water  | 6010D  | 593395     |
| LCS 240-593395/2-A | Lab Control Sample | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-1 MS    | MW-16-04S          | Total Recoverable | Water  | 6010D  | 593395     |
| 240-194639-1 MSD   | MW-16-04S          | Total Recoverable | Water  | 6010D  | 593395     |

### Analysis Batch: 593834

| Lab Sample ID       | Client Sample ID   | Prep Type         | Matrix | Method | Prep Batch |
|---------------------|--------------------|-------------------|--------|--------|------------|
| 240-194639-1        | MW-16-04S          | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194639-2        | MW-17-05           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194639-6        | MW-17-14           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194639-7        | MW-17-15           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194639-8        | MW-17-18           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194639-10       | MW-17-20           | Total Recoverable | Water  | 6020B  | 593395     |
| 240-194639-11       | DUP-02             | Total Recoverable | Water  | 6020B  | 593395     |
| MB 240-593395/1-A   | Method Blank       | Total Recoverable | Water  | 6020B  | 593395     |
| LCS 240-593395/27-A | Lab Control Sample | Total Recoverable | Water  | 6020B  | 593395     |

## General Chemistry

### Analysis Batch: 593567

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method   | Prep Batch |
|------------------|--------------------|-----------|--------|----------|------------|
| 240-194639-2     | MW-17-05           | Total/NA  | Water  | SM 2540C |            |
| 240-194639-7     | MW-17-15           | Total/NA  | Water  | SM 2540C |            |
| MB 240-593567/1  | Method Blank       | Total/NA  | Water  | SM 2540C |            |
| LCS 240-593567/2 | Lab Control Sample | Total/NA  | Water  | SM 2540C |            |

### Analysis Batch: 593630

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method   | Prep Batch |
|---------------|------------------|-----------|--------|----------|------------|
| 240-194639-1  | MW-16-04S        | Total/NA  | Water  | SM 2540C |            |

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# QC Association Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## General Chemistry (Continued)

### Analysis Batch: 593630 (Continued)

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method   | Prep Batch |
|------------------|--------------------|-----------|--------|----------|------------|
| 240-194639-6     | MW-17-14           | Total/NA  | Water  | SM 2540C |            |
| MB 240-593630/1  | Method Blank       | Total/NA  | Water  | SM 2540C |            |
| LCS 240-593630/2 | Lab Control Sample | Total/NA  | Water  | SM 2540C |            |

### Analysis Batch: 593637

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|------------------|--------------------|-----------|--------|--------|------------|
| 240-194639-1     | MW-16-04S          | Total/NA  | Water  | 9056A  |            |
| 240-194639-1     | MW-16-04S          | Total/NA  | Water  | 9056A  |            |
| 240-194639-2     | MW-17-05           | Total/NA  | Water  | 9056A  |            |
| 240-194639-2     | MW-17-05           | Total/NA  | Water  | 9056A  |            |
| 240-194639-6     | MW-17-14           | Total/NA  | Water  | 9056A  |            |
| 240-194639-6     | MW-17-14           | Total/NA  | Water  | 9056A  |            |
| 240-194639-7     | MW-17-15           | Total/NA  | Water  | 9056A  |            |
| 240-194639-7     | MW-17-15           | Total/NA  | Water  | 9056A  |            |
| 240-194639-8     | MW-17-18           | Total/NA  | Water  | 9056A  |            |
| 240-194639-8     | MW-17-18           | Total/NA  | Water  | 9056A  |            |
| 240-194639-11    | DUP-02             | Total/NA  | Water  | 9056A  |            |
| 240-194639-11    | DUP-02             | Total/NA  | Water  | 9056A  |            |
| MB 240-593637/3  | Method Blank       | Total/NA  | Water  | 9056A  |            |
| LCS 240-593637/4 | Lab Control Sample | Total/NA  | Water  | 9056A  |            |

### Analysis Batch: 593718

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method   | Prep Batch |
|------------------|--------------------|-----------|--------|----------|------------|
| 240-194639-8     | MW-17-18           | Total/NA  | Water  | SM 2540C |            |
| 240-194639-10    | MW-17-20           | Total/NA  | Water  | SM 2540C |            |
| 240-194639-11    | DUP-02             | Total/NA  | Water  | SM 2540C |            |
| MB 240-593718/1  | Method Blank       | Total/NA  | Water  | SM 2540C |            |
| LCS 240-593718/2 | Lab Control Sample | Total/NA  | Water  | SM 2540C |            |

### Analysis Batch: 594086

| Lab Sample ID    | Client Sample ID   | Prep Type | Matrix | Method | Prep Batch |
|------------------|--------------------|-----------|--------|--------|------------|
| 240-194639-10    | MW-17-20           | Total/NA  | Water  | 9056A  |            |
| 240-194639-10    | MW-17-20           | Total/NA  | Water  | 9056A  |            |
| MB 240-594086/3  | Method Blank       | Total/NA  | Water  | 9056A  |            |
| LCS 240-594086/4 | Lab Control Sample | Total/NA  | Water  | 9056A  |            |

# Lab Chronicle

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Client Sample ID: MW-16-04S

Date Collected: 10/30/23 12:30

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-1

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 03:38       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 16:44       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 05:50       |
| Total/NA          | Analysis   | 9056A        |     | 5               | 593637       | JWW     | EET CLE | 11/07/23 06:55       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593630       | QUY8    | EET CLE | 11/06/23 15:22       |

## Client Sample ID: MW-17-05

Date Collected: 10/31/23 10:05

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-2

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 03:59       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 16:52       |
| Total/NA          | Analysis   | 9056A        |     | 2               | 593637       | JWW     | EET CLE | 11/07/23 15:36       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 15:57       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593567       | QUY8    | EET CLE | 11/06/23 10:07       |

## Client Sample ID: MW-17-14

Date Collected: 10/31/23 12:14

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-6

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:25       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:02       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 11:37       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 11:59       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593630       | QUY8    | EET CLE | 11/06/23 15:22       |

## Client Sample ID: MW-17-15

Date Collected: 10/31/23 11:32

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-7

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:30       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:04       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 10:10       |

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# Lab Chronicle

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Client Sample ID: MW-17-15

Date Collected: 10/31/23 11:32

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-7

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-----------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total/NA  | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 11:15       |
| Total/NA  | Analysis   | SM 2540C     |     | 1               | 593567       | QUY8    | EET CLE | 11/06/23 10:07       |

## Client Sample ID: MW-17-18

Date Collected: 10/31/23 11:16

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-8

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:34       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:07       |
| Total/NA          | Analysis   | 9056A        |     | 1               | 593637       | JWW     | EET CLE | 11/07/23 09:27       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 09:49       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593718       | QUY8    | EET CLE | 11/07/23 09:33       |

## Client Sample ID: MW-17-20

Date Collected: 10/31/23 12:40

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-10

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:43       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:12       |
| Total/NA          | Analysis   | 9056A        |     | 2               | 594086       | RES     | EET CLE | 11/11/23 16:16       |
| Total/NA          | Analysis   | 9056A        |     | 20              | 594086       | RES     | EET CLE | 11/11/23 16:38       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593718       | QUY8    | EET CLE | 11/07/23 09:33       |

## Client Sample ID: DUP-02

Date Collected: 10/31/23 00:00

Date Received: 11/02/23 08:00

## Lab Sample ID: 240-194639-11

Matrix: Water

| Prep Type         | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Analyst | Lab     | Prepared or Analyzed |
|-------------------|------------|--------------|-----|-----------------|--------------|---------|---------|----------------------|
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6010D        |     | 1               | 593675       | KLC     | EET CLE | 11/07/23 04:48       |
| Total Recoverable | Prep       | 3005A        |     |                 | 593395       | AJC     | EET CLE | 11/03/23 14:00       |
| Total Recoverable | Analysis   | 6020B        |     | 1               | 593834       | RKT     | EET CLE | 11/07/23 17:14       |
| Total/NA          | Analysis   | 9056A        |     | 2               | 593637       | JWW     | EET CLE | 11/07/23 07:17       |
| Total/NA          | Analysis   | 9056A        |     | 10              | 593637       | JWW     | EET CLE | 11/07/23 07:39       |
| Total/NA          | Analysis   | SM 2540C     |     | 1               | 593718       | QUY8    | EET CLE | 11/07/23 09:33       |

### Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Eurofins Cleveland

# Accreditation/Certification Summary

Client: TRC Environmental Corporation.  
Project/Site: CCR DTE River Rouge Power Plant

Job ID: 240-194639-1

## Laboratory: Eurofins Cleveland

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

| Authority         | Program | Identification Number | Expiration Date |
|-------------------|---------|-----------------------|-----------------|
| California        | State   | 2927                  | 02-27-24        |
| Georgia           | State   | 4062                  | 02-27-24        |
| Illinois          | NELAP   | 200004                | 07-31-24        |
| Iowa              | State   | 421                   | 06-01-25        |
| Kentucky (UST)    | State   | 112225                | 02-28-24        |
| Kentucky (WW)     | State   | KY98016               | 12-31-23        |
| Michigan          | State   | 9135                  | 02-27-24        |
| Minnesota         | NELAP   | 039-999-348           | 12-28-23        |
| New Jersey        | NELAP   | OH001                 | 07-01-24        |
| New York          | NELAP   | 10975                 | 01-04-24        |
| Ohio              | State   | 8303                  | 02-27-24        |
| Ohio VAP          | State   | ORELAP 4062           | 02-27-24        |
| Oregon            | NELAP   | 4062                  | 11-27-23        |
| Pennsylvania      | NELAP   | 68-00340              | 01-01-24        |
| Texas             | NELAP   | T104704517-22-19      | 08-31-24        |
| Virginia          | NELAP   | 460175                | 09-14-24        |
| West Virginia DEP | State   | 210                   | 12-19-23        |



**Client Information**  
 Client Contact: Jacob Krenz  
 Company: TRC Environmental Corporation.  
 Address: 1540 Eisenhower Place  
 City: Ann Arbor  
 State, Zip: MI, 48108-7080  
 Phone: 313-971-7080 (Tel) 313-971-9022 (Fax)  
 Email: JKrenz@trocompanies.com  
 Project Name: CCR DTE River Rouge Power Plant  
 Site: Michigan  
 Lab PM: Brooks, Kris M  
 E-Mail: Kris.Brooks@tel.eurofins.com  
 Carrier Tracking No(s):  
 State of Origin: MI  
 COC No: 240-113116-40225.2  
 Page: 1 of 1  
 Job #:

**Analysis Requested**  
 Due Date Requested:  
 TAT Requested (days): Standard  
 Compliance Project:  Yes  No  
 PO #: 199491 - 2023  
 WO #: 518728.0005  
 Project #: 24016806  
 SSOW#:

| Sample Identification | Sample Date | Sample Time | Sample Type (C=comp, G=grab) | Matrix (Water, Solid, Other) | Preservation Code: (ST, TH, AU, AM) | Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | 250C Calcd - TDS | 9056A_28D - Chloride, Fluoride and Sulfate | 6010B Bo. 6020 Ca, As, Ba, Co, Li, Mo | 9315_Raz26 - Standard Target List | 9320_Raz28 - Standard Target List | Total Number of Containers | Special Instructions/Note:                  |
|-----------------------|-------------|-------------|------------------------------|------------------------------|-------------------------------------|-----------------------------------|----------------------------|------------------|--|---------------------------------------|-----------------------------------|-----------------------------------|----------------------------|---|
| MW-16-04S             | 10/30/23    | 1230        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-05              | 10/31/23    | 1065        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-08              | 10/30/23    | 1455        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          | Hold pending analysis but do not reject TDS |
| MW-16-12              | 10/31/23    | 1343        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-13              | 10/31/23    | 1518        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-14              | 10/31/23    | 1244        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-15              | 10/31/23    | 1132        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-18              | 10/31/23    | 1116        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| MW-16-19              | 10/31/23    | 0950        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          | Hold pending analysis but do not reject     |
| MW-16-20              | 10/31/23    | 1240        | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |
| DUP-02                | 10/31/23    | -           | G                            | Water                        |                                     | N                                 | N                          | X                | X  | X                                     | D                                 | D                                 | 3                          |   |

**Possible Hazard Identification**  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  Radiological  
**Deliverable Requested:** I, II, III, IV, Other (specify) TRC EDS  
**Empty Kit Relinquished by:**  
 Relinquished by: [Signature] Date: 10/31/23  
 Relinquished by: [Signature] Date: 11/1/23  
 Relinquished by: [Signature] Date: 1/4/24  
**Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)**  
 Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months  
**Special Instructions/QC Requirements:**  
 Method of Shipment:  
 Date/Time: 10/12/23 1155  
 Date/Time: 11/2/23 800  
 Date/Time:  
 Company: TRC  
 Company: TRC  
 Company: TRC  
 Cooler Temperature(s) °C and Other Remarks:

Eurofins - Cleveland Sample Receipt Form/Narrative

Login #: 194639

Barberton Facility

Client TRC

Site Name \_\_\_\_\_

Cooler unpacked by:

Cooler Received on 11-2-23

Opened on 11-2-23

Rachelle Haider

FedEx: 1<sup>st</sup> Grd Exp  UPS  FAS  Waypoint  Client Drop Off  Eurofins Courier  Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_

Storage Location \_\_\_\_\_

Eurofins Cooler # EC Foam Box  Client Cooler  Box  Other \_\_\_\_\_

Packing material used: Bubble Wrap  Foam  Plastic Bag  None  Other \_\_\_\_\_

COOLANT:  Wet Ice  Blue Ice  Dry Ice  Water  None

1. Cooler temperature upon receipt  See Multiple Cooler Form

IR GUN # 22 (CF 11.1 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1  Yes  No

-Were the seals on the outside of the cooler(s) signed & dated?  Yes  No  NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No

-Were tamper/custody seals intact and uncompromised?  Yes  No  NA

3. Shippers' packing slip attached to the cooler(s)?  Yes  No

4. Did custody papers accompany the sample(s)?  Yes  No

5. Were the custody papers relinquished & signed in the appropriate place?  Yes  No

6. Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No

7. Did all bottles arrive in good condition (Unbroken)?  Yes  No

8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?  Yes  No

9. For each sample, does the COC specify preservatives  (Y/N), # of containers  (Y/N), and sample type of grab/comp  (Y/N)?

10. Were correct bottle(s) used for the test(s) indicated?  Yes  No

11. Sufficient quantity received to perform indicated analyses?  Yes  No

12. Are these work share samples and all listed on the COC?  Yes  No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt?  Yes  No  NA pH Strip Lot# HC316719

14. Were VOAs on the COC?  Yes  No

15. Were air bubbles >6 mm in any VOA vials?  Yes  No  NA

16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_  Yes  No

17. Was a LL Hg or Me Hg trip blank present?  Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES  additional next page

Samples processed by: \_\_\_\_\_

19. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.

Sample(s) \_\_\_\_\_ were received in a broken container.

Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.

Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_

VOA Sample Preservation - Date/Time VOAs Frozen: \_\_\_\_\_



Temperature readings: \_\_\_\_\_

| <u>Client Sample ID</u> | <u>Lab ID</u>   | <u>Container Type</u>            | <u>Container</u> |             | <u>Preservative</u> |              |
|-------------------------|-----------------|----------------------------------|------------------|-------------|---------------------|--------------|
|                         |                 |                                  | <u>pH</u>        | <u>Temp</u> | <u>Added (mls)</u>  | <u>Lot #</u> |
| MW-16-04S               | 240-194639-C-1  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-05                | 240-194639-C-2  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-08                | 240-194639-C-3  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-12                | 240-194639-C-4  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-13                | 240-194639-C-5  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-14                | 240-194639-C-6  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-15                | 240-194639-C-7  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-18                | 240-194639-C-8  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-19                | 240-194639-C-9  | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| MW-17-20                | 240-194639-C-10 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |
| DUP-02                  | 240-194639-C-11 | Plastic 500ml - with Nitric Acid | <2               | _____       | _____               | _____        |

# Appendix B

## Data Quality Reviews



# Laboratory Data Quality Review Groundwater Monitoring Event April 2023 DTE Electric Company River Rouge Power Plant (DTE RRPP)

Groundwater samples were collected by TRC for the April 2023 sampling event for the Bottom Ash Impoundment at the DTE RRPP. Samples were analyzed for anions, total dissolved solids, and total recoverable metals by Eurofins-Test America Laboratories, Inc. (Eurofins-TA) located in Barberton, Ohio. The laboratory analytical results are reported in laboratory report 240-183128-1.

During the April 2023 sampling event, a groundwater sample was collected from each of the following compliance wells:

- MW-16-01
- MW-16-02
- MW-16-03
- MW-17-06
- MW-17-07

Each sample was analyzed for the following constituents:

| Analyte Group                        | Method                 |
|--------------------------------------|------------------------|
| Anions (Fluoride, Chloride, Sulfate) | SW846 9056A            |
| Total Dissolved Solids (TDS)         | SM 2540C               |
| Total Recoverable Metals             | SW846 6010B/6020/7470A |

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

## Data Quality Review Procedure

The analytical data were reviewed using the USEPA National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2020). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs). The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD). Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;

- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes;
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

## **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation are noted below.

- The reviewed Appendix III, IV constituents and additional Part 115 constituents, as well as manganese, magnesium, potassium, and sodium will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

## **QA/QC Sample Summary**

- Target analytes were not detected in the method blanks.
- No field blanks or equipment blanks were submitted with this sample set.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD analyses were performed on sample MW16-03 for anions. The percent recoveries (%Rs) and relative percent differences (RPDs) for the MS/MSD analyses met the method acceptance criteria.
- Laboratory duplicate analysis was performed on sample DUP-01 for TDS; the RPD was within the QC limits.
- The field duplicate pair samples were DUP-01/MW-16-01. The RPDs between the parent and duplicate samples were within acceptance limits.
- Molybdenum was reported at an RL lower than required in the QAPP. Molybdenum was detected in sample MW-17-06 (8.2 ug/L) below the QAPP RL of 10 ug/L.
- The nondetect RL for chromium (5 ug/L) in all samples in this data set was above the RL specified in the QAPP (2 ug/L).
- The nondetect RL for fluoride (0.25 mg/L) in sample MW-17-01 was above the RL specified in the QAPP (0.05 mg/L).



# Laboratory Data Quality Review Groundwater Monitoring Event April 2023 DTE Electric Company River Rouge Power Plant (DTE RRPP)

Groundwater samples were collected by TRC for the April 2023 sampling event for the Bottom Ash Impoundment at the DTE RRPP. Samples were analyzed for radium by Eurofins located in St. Louis, Missouri (Eurofins – St. Louis). The laboratory analytical results are reported in laboratory report 240-183128-2.

During the April 2023 sampling event, a groundwater sample was collected from each of the following compliance wells:

- MW-16-01
- MW-16-02
- MW-16-03
- MW-17-06
- MW-17-07

Each sample was analyzed for the following constituents:

| Analyte Group                                     | Method          |
|---|-----------------|
| Radium (Ra-226, Ra-228, Combined Ra-226 & Ra-228) | SW846 9315/9320 |

TRC reviewed the laboratory data to assess data usability. The following sections summarize the data review procedure and the results of the review.

## Data Quality Review Procedure

The analytical data were reviewed using the Department of Energy Evaluation of Radiochemical Data Usability (USDOE, 1997). The following items were included in the evaluation of the data:

- Sample receipt, as noted in the cover page or case narrative;
- Technical holding times for analyses;
- Reporting limits (RLs) compared to project-required RLs;
- Data for method blanks. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures;
- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Percent recoveries for carriers, where applicable, for radiochemistry only. Carriers are used to assess the chemical yield for the preparation and/or instrument efficiency;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;

- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes;
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

## **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation are noted below.

- The reviewed radium results will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

## **QA/QC Sample Summary**

- Target analytes were not detected in the method blanks.
- No equipment or field blanks were collected.
- LCS/ LCS duplicate recoveries for all target analytes were within the laboratory's statistical control limits.
- MS/MSD analyses were not performed on a sample from this data set.
- The field duplicate pair samples were DUP-01/MW-16-01. The results between the parent and duplicate samples were within acceptance limits.
- Carrier recoveries were within 40-110%.
- The minimum detectable concentration (MDC) for radium 228 and combined radium (1.13 pCi/L) was above the QAPP requested RL (1.0 pCi/L) in sample MW-16-02. There is no adverse impact on data usability since combined radium was detected above the QAPP specified RL in this sample and radium 228 was reported with the detection limit achieved.



- Data for laboratory control samples (LCSs) and laboratory control sample duplicates (LCSDs), when performed. The LCS/LCSDs are used to assess the accuracy and precision of the analytical method using a clean matrix;
- Percent recoveries for matrix spike (MS) and matrix spike duplicates (MSD), when performed on project samples. Percent recoveries are calculated for each analyte spiked and used to assess bias due to sample matrix effects;
- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are replicate analyses of one sample and are used to assess the precision of the analytical method;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes;
- Overall usability of the data.

This data usability report addresses the following items:

- Usability of the data if quality control (QC) results suggest potential problems with all or some of the data;
- Actions regarding specific QC criteria exceedances.

## **Review Summary**

The data quality objectives and laboratory completeness goals for the project were met, and the data are usable for their intended purpose. A summary of the data quality review, including non-conformances and issues identified in this evaluation are noted below.

- The reviewed Appendix III and IV constituents and iron, nickel, vanadium, silver, zinc, and copper will be utilized for the purposes of an assessment monitoring program.
- Data are usable for the purposes of the assessment monitoring program.
- When the data are evaluated through an assessment monitoring statistical program, findings below may be used to support the removal of outliers.

## **QA/QC Sample Summary**

- TDS was analyzed slightly after the 7th day of collection for select samples. No impact on data usability since the samples were analyzed for TDS on the 7th day after collection.
- Target analytes were not detected in the method blanks with the following exception.
  - Copper was detected > the RL in the method blank associated with all samples, MB 240-593395/1-A, at 3.90 µg/L. The result for copper in sample MW-17-15 is potentially biased high due to detection <10x the associated method blank result, as summarized in the attached table.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD analyses were performed on sample MW-16-04S for boron, sample DUP-01 for select metals, and sample MW-16-03 for anions. The percent recoveries (%Rs) and relative percent differences (RPDs) for the MS/MSD analyses met the method acceptance criteria.
- Laboratory duplicate analysis was not performed on a sample from this data set.

- Samples DUP-01/MW-16-01 and DUP-02/MW-17-05 were submitted as the field duplicate pairs with this data set; all criteria were met.
- Boron was reported at an RL lower than required in the QAPP. Boron was detected in sample MW-16-03 (130 µg/L) below the QAPP RL of 200 µg/L.

**Appendix C**  
**Appendix IV Assessment Monitoring Statistical**  
**Evaluation – April 2023**

## Technical Memorandum

---

**Date:** August 11, 2023

**To:** DTE Electric Company

**From:** Sarah Holmstrom, TRC  
Kristin Lowery, TRC  
Henry Schnaidt, TRC

**Project No.:** 518728.0005.0000

**Subject:** Appendix IV Assessment Monitoring Statistical Evaluation for April 2023 Groundwater Monitoring Event – DTE Electric Company, River Rouge Power Plant, Bottom Ash Basin Coal Combustion Residual Unit

---

### Introduction

In accordance with §257.96(b) of the federal Coal Combustion Residual (CCR) rule<sup>1</sup>, DTE Electric Company (DTE Electric) is continuing assessment monitoring for the River Rouge Power Plant (RRPP) Bottom Ash Basin (BAB) CCR unit. The first semiannual assessment monitoring event of 2023 for the Appendix III and Appendix IV constituents was conducted on April 3, 2023. In accordance with §257.95, the assessment monitoring data must be evaluated to determine whether or not Appendix IV constituents are detected at statistically significant levels above the GWPSs. This memorandum presents the confidence limits derived for the Appendix IV parameters for the RRPP BAB CCR unit that will be used to compare to the established GWPSs.

### Assessment Monitoring Statistical Evaluation

The three compliance wells utilized for the RRPP BAB CCR unit are MW-16-01, MW-16-02 and MW-16-03. Following the first semiannual assessment monitoring sampling event for 2023, compliance well data for the RRPP BAB were evaluated in accordance with the Groundwater Statistical Evaluation Plan (Stats Plan) (TRC, October 2017; Revised December 2017). For each detected constituent, the concentrations for each well were first compared directly to the GWPS within the most recent eight sampling events. Parameter-well combinations that included a direct exceedance of the GWPS were retained for further analysis. As a result, arsenic and lithium at MW-16-01 were retained for further evaluation.

Groundwater data were then evaluated utilizing ChemStat™ statistical software. ChemStat™ is a software tool that is commercially available for performing statistical evaluation consistent with

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<sup>1</sup> USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.



## Technical Memorandum

procedures outlined in U.S. EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance; UG). Within the ChemStat™ statistical program (and the UG), confidence limits were selected to perform the statistical comparison of compliance data to a fixed standard. Parametric and non-parametric confidence intervals were calculated for each of the Appendix IV parameters using a 99 percent confidence level, i.e., a significance level ( $\alpha$ ) of 0.01. The following narrative describes the methods employed, the results obtained and the ChemStat™ output files are included as an attachment.

The ChemStat™ software was used to test compliance at the downgradient monitoring wells using the confidence interval method for the most recent eight sampling events. Eight independent sampling events provide the appropriate density of data as recommended per the UG yet are collected recently enough to provide an indication of current conditions under the hydraulic influence of the groundwater extraction system.

The statistical data evaluation included the following steps:

- Review of data quality checklists for the assessment monitoring data sets for Appendix IV constituents;
- Evaluation of percentage of non-detects for each downgradient well-constituent pair;
- Graphical representation of the assessment monitoring data as time versus concentration (T v. C) by well/constituent pair;
- Outlier testing of individual data points that appear from the graphical representations as potential outliers;
- Evaluation of visual trends apparent in the graphical representations for statistical significance;
- Distribution of the data; and
- Calculation of the confidence intervals for each cumulative dataset.

The results of these evaluations are presented and discussed below.

### Data Quality

Data from the first semiannual monitoring event for 2023 were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The review was completed using the following quality control (QC) information which at a minimum included chain-of-custody forms, investigative sample results including blind field duplicates, and as provided by the laboratory, method blanks, laboratory control spikes, laboratory duplicates. The data were found to be complete and usable for the purposes of the CCR monitoring program.

### Percentage of Non-detects

The percentage of non-detect observations for constituents with one or more detection above a GWPS is included in Table 1. Non-detect data was handled in accordance with the Stats Plan for the purposes of calculating confidence intervals.

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### Time versus Concentration Graphs

The T v. C graphs did not show any potential outliers. The T v. C graphs showed potential trending for some Appendix IV well/constituent pairs. These were tested by the ChemStat™ software to assess whether the trends are statistically significant.

### Outlier Testing

No potential outliers were observed on the T v. C graphs; therefore, no outlier testing was performed.

### Trend Analysis

Visual trends apparent in the T v. C graphs were evaluated in ChemStat™ using the Mann-Kendall Trend Analysis to determine if a subset of data should be used in calculating the confidence interval. Trends were evaluated using a 95-percent (one-tailed) confidence level, i.e., a significance level ( $\alpha$ ) of 0.05. No statistically significant trends were identified.

### Distribution of the Data Sets

ChemStat™ was utilized to evaluate each data set for normality. If the skewness coefficient was calculated to be between negative one and one, then the data were assumed to be approximately normally distributed. If the skewness coefficient was calculated as greater than one (or less than negative one) then the calculation was performed on the natural log (Ln) of the data. If the Ln of the data still determined that the data appeared to be skewed, then the Shapiro-Wilk test of normality (Shapiro-Wilk) was performed. The Shapiro-Wilk statistic was calculated on both non-transformed data, and the Ln-transformed data. If the Shapiro-Wilk statistic indicated that normal distributional assumptions were not valid, then the parameter was considered a candidate for non-parametric statistical evaluation. The data distributions are summarized in Table 1.

### Confidence Intervals

Variability is recognized in the data set due to changing groundwater quality in response to the operation of the groundwater extraction system. Calculating a confidence interval around a trending data set incorporates not only variability present naturally in the underlying dataset but can exaggerate variability.

Table 1 presents the calculated confidence intervals for each well-constituent pair. For normal and lognormal distributions, confidence intervals are calculated for 99 percent confidence using parametric methods. For non-normal datasets, a nonparametric confidence interval is utilized, resulting in the highest and lowest values from the contributing dataset as the confidence limits.

The confidence intervals calculated through the above-described process will be compared to the GWPS to determine if an exceedance has occurred. An exceedance of the standard occurs when the 99 percent lower confidence level of the downgradient data exceeds the GWPS.

### Attachments

Table 1 Summary of Descriptive Statistics and Confidence Interval Calculations

Attachment A ChemStat™ Outputs

**Table 1**  
**Summary of Descriptive Statistics and**  
**Confidence Interval Calculations**

**Table 1**  
 Summary of Descriptive Statistics and Confidence Interval Calculations  
 Assessment Monitoring Statistical Evaluation - April 2023  
 DTE Electric Company – River Rouge Power Plant

| Parameter <sup>(1)</sup> | Percent Non-Detect | Outliers? | Trend? | Skewness           |             | Shapiro-Wilks Test (5% Critical Value) |             | Parametric / Non-Parametric | Confidence Interval <sup>(2)</sup> |
|--------------------------|--------------------|-----------|--------|--------------------|-------------|--|-------------|-----------------------------|------------------------------------|
|                          |                    |           |        | Un-Transformed     | Natural Log | Un-Transformed                         | Natural Log |                             |                                    |
| <b>MW-16-01</b>          |                    |           |        |                    |             |  |             |                             |                                    |
| Arsenic                  | 0%                 | No        | No     | -1 < -0.584639 < 1 | --          | --                                     | --          | Parametric                  | [46, 190]                          |
| Lithium                  | 0%                 | No        | No     | -1 < 0.605963 < 1  | --          | --                                     | --          | Parametric                  | [35, 65]                           |

**Notes:**



- (1) Well-parameter combinations that have one or more direct exceedances of the Groundwater Protection Standard within the most recent eight sampling events.
- (2) The most recent eight data points are used to calculate the confidence interval to be representative of current conditions.

# **Attachment A**

## **ChemStat™ Confidence Interval Outputs**

## Concentrations (ug/L)

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements: 24

Total Non-Detect: 13

Percent Non-Detects: 54.1667%

Total Background Measurements: 0

There are 0 background locations

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

There are 3 compliance locations

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

|                   |            |            |                   |            |            |
|-------------------|------------|------------|-------------------|------------|------------|
| MW-16-01          | 8          | 0 (0%)     | 9/26/2019         | 140        | 140        |
|                   |            |            | 3/20/2020         | 170        | 170        |
|                   |            |            | 11/11/2020        | 130        | 130        |
|                   |            |            | 2/25/2021         | 110        | 110        |
|                   |            |            | 10/20/2021        | 200        | 200        |
|                   |            |            | 2/22/2022         | 140        | 140        |
|                   |            |            | 12/1/2022         | 28         | 28         |
|                   |            |            | 4/3/2023          | 10         | 10         |
|                   |            |            | <b>8/5/2016</b>   | <b>37</b>  | <b>37</b>  |
|                   |            |            | <b>9/30/2016</b>  | <b>37</b>  | <b>37</b>  |
|                   |            |            | <b>11/18/2016</b> | <b>39</b>  | <b>39</b>  |
|                   |            |            | <b>1/20/2017</b>  | <b>40</b>  | <b>40</b>  |
|                   |            |            | <b>3/10/2017</b>  | <b>38</b>  | <b>38</b>  |
|                   |            |            | <b>4/28/2017</b>  | <b>37</b>  | <b>37</b>  |
|                   |            |            | <b>6/16/2017</b>  | <b>35</b>  | <b>35</b>  |
|                   |            |            | <b>7/21/2017</b>  | <b>36</b>  | <b>36</b>  |
|                   |            |            | <b>4/6/2018</b>   | <b>160</b> | <b>160</b> |
| <b>5/30/2018</b>  | <b>170</b> | <b>170</b> |                   |            |            |
| <b>10/16/2018</b> | <b>160</b> | <b>160</b> |                   |            |            |
| <b>3/29/2019</b>  | <b>170</b> | <b>170</b> |                   |            |            |

|                   |                  |                  |                   |           |           |
|-------------------|------------------|------------------|-------------------|-----------|-----------|
| MW-16-02          | 8                | 6 (75%)          | 9/26/2019         | ND<5 U    | ND<5 U    |
|                   |                  |                  | 3/20/2020         | ND<5 U    | ND<5 U    |
|                   |                  |                  | 11/11/2020        | ND<5 U    | ND<5 U    |
|                   |                  |                  | 2/25/2021         | 2.6       | 2.6       |
|                   |                  |                  | 10/20/2021        | ND<5 U    | ND<5 U    |
|                   |                  |                  | 2/22/2022         | 2.4       | 2.4       |
|                   |                  |                  | 12/1/2022         | ND<5      | ND<5      |
|                   |                  |                  | 4/3/2023          | ND<5 U    | ND<5 U    |
|                   |                  |                  | <b>8/5/2016</b>   | <b>24</b> | <b>24</b> |
|                   |                  |                  | <b>9/30/2016</b>  | <b>27</b> | <b>27</b> |
|                   |                  |                  | <b>11/18/2016</b> | <b>30</b> | <b>30</b> |
|                   |                  |                  | <b>1/20/2017</b>  | <b>31</b> | <b>31</b> |
|                   |                  |                  | <b>3/10/2017</b>  | <b>29</b> | <b>29</b> |
|                   |                  |                  | <b>4/28/2017</b>  | <b>30</b> | <b>30</b> |
|                   |                  |                  | <b>6/16/2017</b>  | <b>30</b> | <b>30</b> |
|                   |                  |                  | <b>7/21/2017</b>  | <b>27</b> | <b>27</b> |
|                   |                  |                  | <b>4/6/2018</b>   | <b>15</b> | <b>15</b> |
| <b>5/30/2018</b>  | <b>ND&lt;5 U</b> | <b>ND&lt;5 U</b> |                   |           |           |
| <b>10/16/2018</b> | <b>7.9</b>       | <b>7.9</b>       |                   |           |           |
| <b>3/29/2019</b>  | <b>ND&lt;5 U</b> | <b>ND&lt;5 U</b> |                   |           |           |

|          |   |           |            |        |        |
|----------|---|-----------|------------|--------|--------|
| MW-16-03 | 8 | 7 (87.5%) | 9/26/2019  | ND<5 U | ND<5 U |
|          |   |           | 3/20/2020  | ND<5 U | ND<5 U |
|          |   |           | 11/11/2020 | ND<5 U | ND<5 U |
|          |   |           | 2/25/2021  | ND<5   | ND<5   |
|          |   |           | 10/20/2021 | ND<5 U | ND<5 U |
|          |   |           | 2/22/2022  | 0.36 J | 0.36 J |
|          |   |           | 11/30/2022 | ND<5   | ND<5   |
|          |   |           | 4/3/2023   | ND<5 U | ND<5 U |

|            |        |        |
|------------|--------|--------|
| 8/5/2016   | 91     | 91     |
| 9/30/2016  | 40     | 40     |
| 11/18/2016 | 21     | 21     |
| 1/20/2017  | 13     | 13     |
| 3/10/2017  | 12     | 12     |
| 4/28/2017  | 12     | 12     |
| 6/16/2017  | 12     | 12     |
| 7/21/2017  | 12     | 12     |
| 4/6/2018   | ND<5 U | ND<5 U |
| 5/30/2018  | ND<5 U | ND<5 U |
| 10/16/2018 | ND<5 U | ND<5 U |
| 3/29/2019  | ND<5 U | ND<5 U |

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There are 0 unused locations

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| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

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## Concentrations (ug/L)

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements: 24

Total Non-Detect: 5

Percent Non-Detects: 20.8333%

Total Background Measurements: 0

There are 0 background locations

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

There are 3 compliance locations

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

|          |   |        |                   |           |           |
|----------|---|--------|-------------------|-----------|-----------|
| MW-16-01 | 8 | 0 (0%) | 9/26/2019         | 52        | 52        |
|          |   |        | 3/20/2020         | 52        | 52        |
|          |   |        | 11/11/2020        | 46        | 46        |
|          |   |        | 2/25/2021         | 38        | 38        |
|          |   |        | 10/20/2021        | 34        | 34        |
|          |   |        | 2/22/2022         | 40        | 40        |
|          |   |        | 12/1/2022         | 75        | 75        |
|          |   |        | 4/3/2023          | 66        | 66        |
|          |   |        | <b>8/5/2016</b>   | <b>44</b> | <b>44</b> |
|          |   |        | <b>9/30/2016</b>  | <b>53</b> | <b>53</b> |
|          |   |        | <b>11/18/2016</b> | <b>50</b> | <b>50</b> |
|          |   |        | <b>1/20/2017</b>  | <b>48</b> | <b>48</b> |
|          |   |        | <b>3/10/2017</b>  | <b>49</b> | <b>49</b> |
|          |   |        | <b>4/28/2017</b>  | <b>53</b> | <b>53</b> |
|          |   |        | <b>6/16/2017</b>  | <b>51</b> | <b>51</b> |
|          |   |        | <b>7/21/2017</b>  | <b>44</b> | <b>44</b> |

|          |   |        |                   |           |           |
|----------|---|--------|-------------------|-----------|-----------|
| MW-16-02 | 8 | 0 (0%) | 9/26/2019         | 18        | 18        |
|          |   |        | 3/20/2020         | 14        | 14        |
|          |   |        | 11/11/2020        | 13        | 13        |
|          |   |        | 2/25/2021         | 14        | 14        |
|          |   |        | 10/20/2021        | 14        | 14        |
|          |   |        | 2/22/2022         | 16        | 16        |
|          |   |        | 12/1/2022         | 11        | 11        |
|          |   |        | 4/3/2023          | 20        | 20        |
|          |   |        | <b>8/5/2016</b>   | <b>57</b> | <b>57</b> |
|          |   |        | <b>9/30/2016</b>  | <b>64</b> | <b>64</b> |
|          |   |        | <b>11/18/2016</b> | <b>62</b> | <b>62</b> |
|          |   |        | <b>1/20/2017</b>  | <b>64</b> | <b>64</b> |
|          |   |        | <b>3/10/2017</b>  | <b>58</b> | <b>58</b> |
|          |   |        | <b>4/28/2017</b>  | <b>71</b> | <b>71</b> |
|          |   |        | <b>6/16/2017</b>  | <b>64</b> | <b>64</b> |
|          |   |        | <b>7/21/2017</b>  | <b>52</b> | <b>52</b> |

|          |   |           |            |        |        |
|----------|---|-----------|------------|--------|--------|
| MW-16-03 | 8 | 5 (62.5%) | 9/26/2019  | ND<8 U | ND<8 U |
|          |   |           | 3/20/2020  | ND<8 U | ND<8 U |
|          |   |           | 11/11/2020 | ND<8 U | ND<8 U |
|          |   |           | 2/25/2021  | 4.8    | 4.8    |
|          |   |           | 10/20/2021 | ND<8 U | ND<8 U |
|          |   |           | 2/22/2022  | 7.9    | 7.9    |
|          |   |           | 11/30/2022 | ND<8   | ND<8   |
|          |   |           | 4/3/2023   | 8.8    | 8.8    |

|            |        |        |
|------------|--------|--------|
| 8/5/2016   | 29     | 29     |
| 9/30/2016  | 44     | 44     |
| 11/18/2016 | 44     | 44     |
| 1/20/2017  | 49     | 49     |
| 3/10/2017  | 45     | 45     |
| 4/28/2017  | 51     | 51     |
| 6/16/2017  | 49     | 49     |
| 7/21/2017  | 41     | 41     |
| 4/6/2018   | 15     | 15     |
| 5/30/2018  | 11     | 11     |
| 10/16/2018 | ND<8 U | ND<8 U |
| 3/29/2019  | ND<8 U | ND<8 U |

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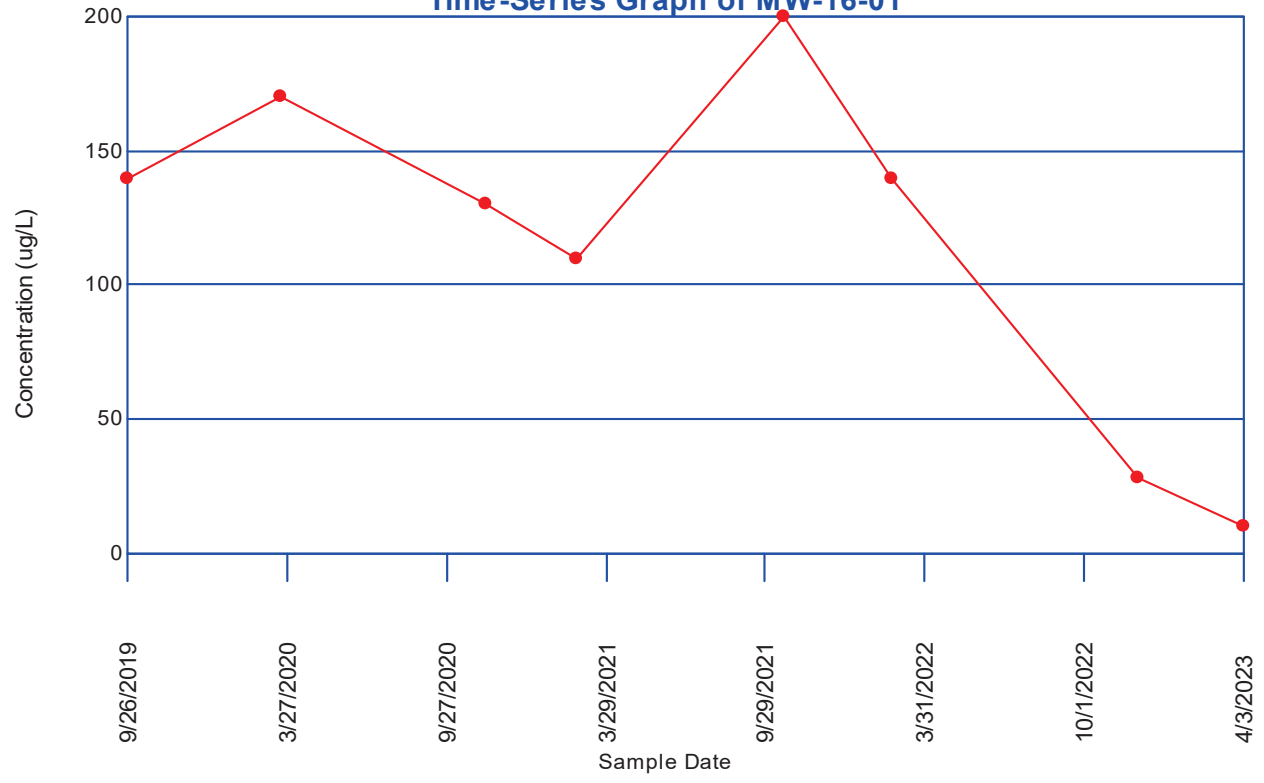
There are 0 unused locations

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| <b>Loc.</b> | <b>Meas.</b> | <b>ND</b> | <b>Date</b> | <b>Conc.</b> | <b>Original</b> |
|-------------|--------------|-----------|-------------|--------------|-----------------|
|-------------|--------------|-----------|-------------|--------------|-----------------|

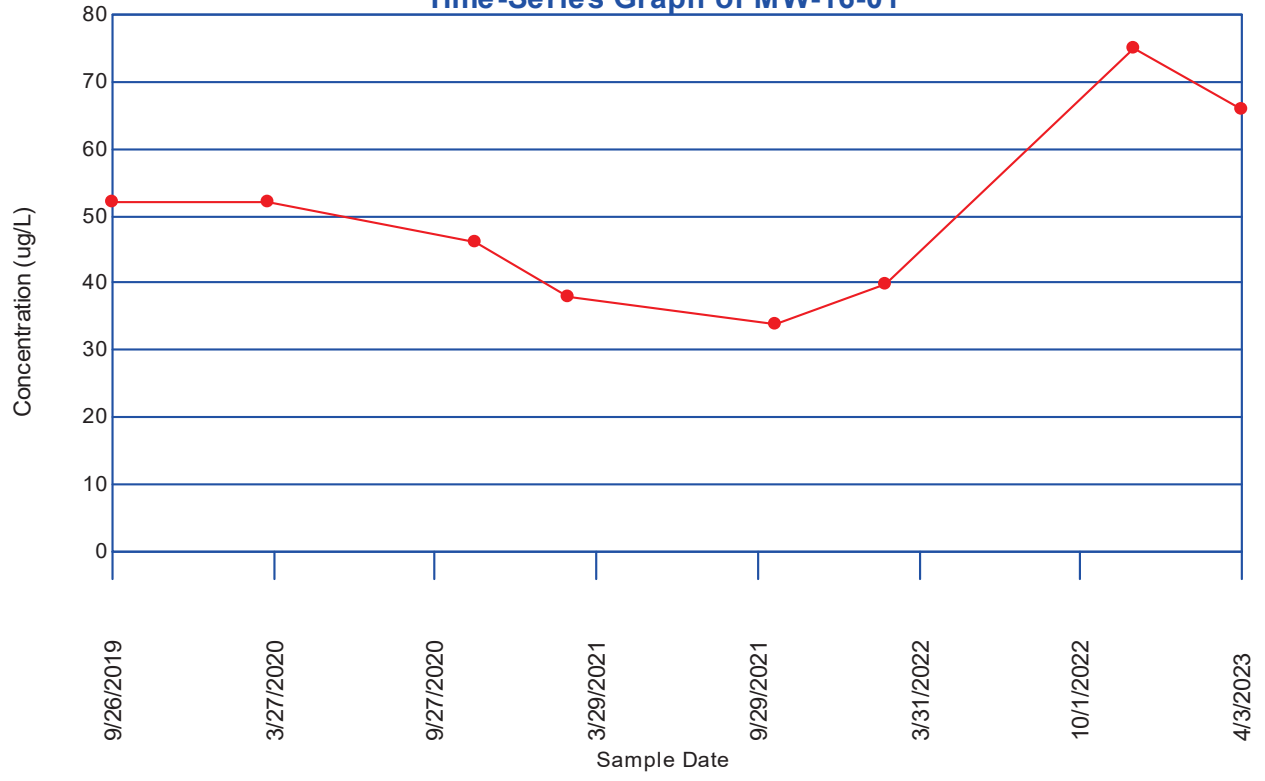
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### Arsenic Time-Series Graph of MW-16-01



# Lithium

## Time-Series Graph of MW-16-01



**Mann-Kendall Trend Analysis**  
**Parameter: Arsenic**  
**Location: MW-16-01**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with Detection Limit**

95% Confidence Level

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 170       | 140       | 30             | 1                | 0                |
| 130       | 140       | -10            | 1                | 1                |
| 110       | 140       | -30            | 1                | 2                |
| 200       | 140       | 60             | 2                | 2                |
| 140       | 140       | 0              | 2                | 2                |
| 28        | 140       | -112           | 2                | 3                |
| 10        | 140       | -130           | 2                | 4                |
| 130       | 170       | -40            | 2                | 5                |
| 110       | 170       | -60            | 2                | 6                |
| 200       | 170       | 30             | 3                | 6                |
| 140       | 170       | -30            | 3                | 7                |
| 28        | 170       | -142           | 3                | 8                |
| 10        | 170       | -160           | 3                | 9                |
| 110       | 130       | -20            | 3                | 10               |
| 200       | 130       | 70             | 4                | 10               |
| 140       | 130       | 10             | 5                | 10               |
| 28        | 130       | -102           | 5                | 11               |
| 10        | 130       | -120           | 5                | 12               |
| 200       | 110       | 90             | 6                | 12               |
| 140       | 110       | 30             | 7                | 12               |
| 28        | 110       | -82            | 7                | 13               |
| 10        | 110       | -100           | 7                | 14               |
| 140       | 200       | -60            | 7                | 15               |
| 28        | 200       | -172           | 7                | 16               |
| 10        | 200       | -190           | 7                | 17               |
| 28        | 140       | -112           | 7                | 18               |
| 10        | 140       | -130           | 7                | 19               |
| 10        | 28        | -18            | 7                | 20               |

S Statistic = 7 - 20 = -13  
 Comparing at 95% confidence level (upward trend)  
**Failed to calculate probability for S = -13**  
**Table out of range**

Probability of obtaining  $S \leq -13$  is 0.0715  
 $S < 0$  or  $0.0715 > 0.05$  indicating no evidence of an upward trend.

**Mann-Kendall Trend Analysis**  
**Parameter: Arsenic**  
**Location: MW-16-01**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with Detection Limit**

95% Confidence Level

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 170       | 140       | 30             | 1                | 0                |
| 130       | 140       | -10            | 1                | 1                |
| 110       | 140       | -30            | 1                | 2                |
| 200       | 140       | 60             | 2                | 2                |
| 140       | 140       | 0              | 2                | 2                |
| 28        | 140       | -112           | 2                | 3                |
| 10        | 140       | -130           | 2                | 4                |
| 130       | 170       | -40            | 2                | 5                |
| 110       | 170       | -60            | 2                | 6                |
| 200       | 170       | 30             | 3                | 6                |
| 140       | 170       | -30            | 3                | 7                |
| 28        | 170       | -142           | 3                | 8                |
| 10        | 170       | -160           | 3                | 9                |
| 110       | 130       | -20            | 3                | 10               |
| 200       | 130       | 70             | 4                | 10               |
| 140       | 130       | 10             | 5                | 10               |
| 28        | 130       | -102           | 5                | 11               |
| 10        | 130       | -120           | 5                | 12               |
| 200       | 110       | 90             | 6                | 12               |
| 140       | 110       | 30             | 7                | 12               |
| 28        | 110       | -82            | 7                | 13               |
| 10        | 110       | -100           | 7                | 14               |
| 140       | 200       | -60            | 7                | 15               |
| 28        | 200       | -172           | 7                | 16               |
| 10        | 200       | -190           | 7                | 17               |
| 28        | 140       | -112           | 7                | 18               |
| 10        | 140       | -130           | 7                | 19               |
| 10        | 28        | -18            | 7                | 20               |

S Statistic = 7 - 20 = -13  
 Comparing at 95% confidence level (downward trend)  
**Failed to calculate probability for S = -13**  
**Table out of range**

Probability of obtaining  $S \leq -13$  is 0.0715  
 $S > 0$  or  $0.0715 > 0.05$  indicating no  
 evidence of a downward trend.

**Mann-Kendall Trend Analysis**  
**Parameter: Lithium**  
**Location: MW-16-01**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with Detection Limit**

95% Confidence Level

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 52        | 52        | 0              | 0                | 0                |
| 46        | 52        | -6             | 0                | 1                |
| 38        | 52        | -14            | 0                | 2                |
| 34        | 52        | -18            | 0                | 3                |
| 40        | 52        | -12            | 0                | 4                |
| 75        | 52        | 23             | 1                | 4                |
| 66        | 52        | 14             | 2                | 4                |
| 46        | 52        | -6             | 2                | 5                |
| 38        | 52        | -14            | 2                | 6                |
| 34        | 52        | -18            | 2                | 7                |
| 40        | 52        | -12            | 2                | 8                |
| 75        | 52        | 23             | 3                | 8                |
| 66        | 52        | 14             | 4                | 8                |
| 38        | 46        | -8             | 4                | 9                |
| 34        | 46        | -12            | 4                | 10               |
| 40        | 46        | -6             | 4                | 11               |
| 75        | 46        | 29             | 5                | 11               |
| 66        | 46        | 20             | 6                | 11               |
| 34        | 38        | -4             | 6                | 12               |
| 40        | 38        | 2              | 7                | 12               |
| 75        | 38        | 37             | 8                | 12               |
| 66        | 38        | 28             | 9                | 12               |
| 40        | 34        | 6              | 10               | 12               |
| 75        | 34        | 41             | 11               | 12               |
| 66        | 34        | 32             | 12               | 12               |
| 75        | 40        | 35             | 13               | 12               |
| 66        | 40        | 26             | 14               | 12               |
| 66        | 75        | -9             | 14               | 13               |

S Statistic = 14 - 13 = 1  
 Comparing at 95% confidence level (upward trend)  
**Failed to calculate probability for S = 1**  
**Table out of range**

Probability of obtaining  $S \geq 1$  is 0.5  
 $S < 0$  or  $0.5 > 0.05$  indicating no evidence of an upward trend.

**Mann-Kendall Trend Analysis**  
**Parameter: Lithium**  
**Location: MW-16-01**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with Detection Limit**

95% Confidence Level

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 52        | 52        | 0              | 0                | 0                |
| 46        | 52        | -6             | 0                | 1                |
| 38        | 52        | -14            | 0                | 2                |
| 34        | 52        | -18            | 0                | 3                |
| 40        | 52        | -12            | 0                | 4                |
| 75        | 52        | 23             | 1                | 4                |
| 66        | 52        | 14             | 2                | 4                |
| 46        | 52        | -6             | 2                | 5                |
| 38        | 52        | -14            | 2                | 6                |
| 34        | 52        | -18            | 2                | 7                |
| 40        | 52        | -12            | 2                | 8                |
| 75        | 52        | 23             | 3                | 8                |
| 66        | 52        | 14             | 4                | 8                |
| 38        | 46        | -8             | 4                | 9                |
| 34        | 46        | -12            | 4                | 10               |
| 40        | 46        | -6             | 4                | 11               |
| 75        | 46        | 29             | 5                | 11               |
| 66        | 46        | 20             | 6                | 11               |
| 34        | 38        | -4             | 6                | 12               |
| 40        | 38        | 2              | 7                | 12               |
| 75        | 38        | 37             | 8                | 12               |
| 66        | 38        | 28             | 9                | 12               |
| 40        | 34        | 6              | 10               | 12               |
| 75        | 34        | 41             | 11               | 12               |
| 66        | 34        | 32             | 12               | 12               |
| 75        | 40        | 35             | 13               | 12               |
| 66        | 40        | 26             | 14               | 12               |
| 66        | 75        | -9             | 14               | 13               |

S Statistic = 14 - 13 = 1  
 Comparing at 95% confidence level (downward trend)

**Failed to calculate probability for S = 1**  
**Table out of range**

Probability of obtaining  $S \geq 1$  is 0.5  
 $S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend.



## Skewness Coefficient

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

---

### Compliance Locations

| Location | Obs. | Mean   | Std. Dev. | Skewness  |
|----------|------|--------|-----------|-----------|
| MW-16-01 | 8    | 116    | 65.831    | -0.584639 |
| MW-16-02 | 8    | 2.5    | 0.0534522 | 0         |
| MW-16-03 | 8    | 2.2325 | 0.756604  | -2.26779  |

---

### All Locations

| Obs. | Mean    | Std. Dev. | Skewness |
|------|---------|-----------|----------|
| 24   | 40.2442 | 65.6763   | 1.31856  |

## Skewness Coefficient

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

---

### Compliance Locations

| Location | Obs. | Mean   | Std. Dev. | Skewness       |
|----------|------|--------|-----------|----------------|
| MW-16-01 | 8    | 50.375 | 14.1617   | 0.605963       |
| MW-16-02 | 8    | 15     | 2.87849   | 0.499456       |
| MW-16-03 | 8    | 5.1875 | 1.98598   | <b>1.14391</b> |

---

### All Locations

| Obs. | Mean    | Std. Dev. | Skewness       |
|------|---------|-----------|----------------|
| 24   | 23.5208 | 21.3952   | <b>1.00758</b> |

# Confidence Interval

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

---

## Compliance Locations

### Location MW-16-01

Mean 116  
Std Dev 65.831  
Degrees of Freedom 7  
**Comparison Level** 0  
Untransformed Comp. Level 0

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [46.2235, 185.777] | 116       | TRUE        |
| 95%        | 1.89458 | [71.9042, 160.096] | 116       | TRUE        |

---

### Location MW-16-02

Mean 2.5  
Std Dev 0.0534522  
Degrees of Freedom 7  
**Comparison Level** 0  
Untransformed Comp. Level 0

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [2.44334, 2.55666] | 2.5       | TRUE        |
| 95%        | 1.89458 | [2.4642, 2.5358]   | 2.5       | TRUE        |

---

### Location MW-16-03

Mean 2.2325  
Std Dev 0.756604  
Degrees of Freedom 7  
**Comparison Level** 0  
Untransformed Comp. Level 0

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [1.43055, 3.03445] | 2.2325    | TRUE        |
| 95%        | 1.89458 | [1.7257, 2.7393]   | 2.2325    | TRUE        |

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# Confidence Interval

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

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## Compliance Locations

### Location MW-16-01

Mean 50.375  
Std Dev 14.1617  
Degrees of Freedom 7  
**Comparison Level 0**  
Untransformed Comp. Level 0

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [35.3645, 65.3855] | 50.375    | <b>TRUE</b> |
| 95%        | 1.89458 | [40.889, 59.861]   | 50.375    | <b>TRUE</b> |

---

### Location MW-16-02

Mean 15  
Std Dev 2.87849  
Degrees of Freedom 7  
**Comparison Level 0**  
Untransformed Comp. Level 0

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [11.949, 18.051]   | 15        | <b>TRUE</b> |
| 95%        | 1.89458 | [13.0719, 16.9281] | 15        | <b>TRUE</b> |

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### Location MW-16-03

Mean 5.1875  
Std Dev 1.98598  
Degrees of Freedom 7  
**Comparison Level 0**  
Untransformed Comp. Level 0

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [3.08249, 7.29251] | 5.1875    | <b>TRUE</b> |
| 95%        | 1.89458 | [3.85722, 6.51778] | 5.1875    | <b>TRUE</b> |

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# Appendix D

## Appendix IV Assessment Monitoring Statistical Evaluation – October 2023

## Technical Memorandum

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**Date:** January 31, 2024

**To:** DTE Electric Company

**From:** Sarah Holmstrom, TRC  
Kristin Lowery, TRC  
Henry Schnaidt, TRC

**Project No.:** 518728.0005.0000

**Subject:** Appendix IV Assessment Monitoring Statistical Evaluation for October 2023  
Groundwater Monitoring Event – DTE Electric Company, River Rouge Power Plant,  
Bottom Ash Basin Coal Combustion Residual Unit

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### Introduction

In accordance with §257.96(b) of the federal Coal Combustion Residual (CCR) rule<sup>1</sup>, DTE Electric Company (DTE Electric) is continuing assessment monitoring for the River Rouge Power Plant (RRPP) Bottom Ash Basin (BAB) CCR unit. The second semiannual assessment monitoring event of 2023 for the Appendix III and Appendix IV constituents was conducted on October 30 and 31, 2023. In accordance with §257.95, the assessment monitoring data must be evaluated to determine whether or not Appendix IV constituents are detected at statistically significant levels above the groundwater protection standards (GWPSs). This memorandum presents the confidence limits derived for the Appendix IV parameters for the RRPP BAB CCR unit that will be used to compare to the established GWPSs.

### Assessment Monitoring Statistical Evaluation

The three compliance wells utilized for the RRPP BAB CCR unit are MW-16-01, MW-16-02 and MW-16-03. Additionally, monitoring wells MW-16-04S, MW-17-05, MW-17-14, MW-17-15, MW-17-18, , and MW-17-20 are used to evaluate the nature and extent of releases of CCR constituents in groundwater as well as any site conditions that may affect the remedy selected. Following the second semiannual assessment monitoring sampling event for 2023, compliance and nature and extent well data for the RRPP BAB were evaluated in accordance with the Groundwater Statistical Evaluation Plan (Stats Plan) (TRC, October 2017; Revised December 2017). For each detected constituent, the concentrations for each well were first compared directly to the GWPS within the dataset collected subsequent to the groundwater extraction system operation. Parameter-well combinations that included a direct exceedance of the GWPS were retained for further analysis. As a result, arsenic and

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<sup>1</sup> USEPA final rule for the regulation and management of Coal Combustion Residuals (CCR) under the Resource Conservation and Recovery Act (RCRA) published April 17, 2015, as amended.

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lithium at MW-16-01 and lithium at MW-17-05 (nature and extent) were retained for further evaluation.

Groundwater data were then evaluated utilizing ChemStat™ statistical software. ChemStat™ is a software tool that is commercially available for performing statistical evaluation consistent with procedures outlined in U.S. EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities<sup>2</sup> (Unified Guidance; UG). Within the ChemStat™ statistical program (and the UG), confidence limits were selected to perform the statistical comparison of compliance data to a fixed standard. Parametric and non-parametric confidence intervals were calculated for each of the Appendix IV parameters using a 99 percent confidence level, i.e., a significance level ( $\alpha$ ) of 0.01. The following narrative describes the methods employed, the results obtained and the ChemStat™ output files are included as an attachment.

The ChemStat™ software was used to test compliance at the downgradient monitoring wells using the confidence interval method for the most recent eight sampling events. Eight independent sampling events provide the appropriate density of data as recommended per the UG yet are collected recently enough to provide an indication of current conditions under the hydraulic influence of the groundwater extraction system. For nature and extent wells, sampling has been completed annually following the identification of parameters present at statistically significant levels above their respective GWPS. Nature and extent sampling was initiated in 2018; therefore, six sampling events of data are available for evaluation.

The statistical data evaluation included the following steps:

- Review of data quality checklists for the assessment monitoring data sets for Appendix IV constituents;
- Evaluation of percentage of non-detects for each downgradient well-constituent pair;
- Graphical representation of the assessment monitoring data as time versus concentration (T v. C) by well/constituent pair;
- Outlier testing of individual data points that appear from the graphical representations as potential outliers;
- Evaluation of visual trends apparent in the graphical representations for statistical significance;
- Distribution of the data; and
- Calculation of the confidence intervals for each cumulative dataset.

The results of these evaluations are presented and discussed below.

### Data Quality

Data from the second semiannual monitoring event for 2023 were evaluated for completeness, overall quality and usability, method-specified sample holding times, precision and accuracy, and potential sample contamination. The review was completed using the following quality control (QC) information which at a minimum included chain-of-custody forms, investigative sample results including blind field duplicates, and, as provided by the laboratory, method blanks, laboratory control spikes, laboratory

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<sup>2</sup> USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Conservation and Recovery. EPA 530/R-09-007.

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duplicates. The data were found to be complete and usable for the purposes of the CCR monitoring program.

### Percentage of Non-detects

The percentage of non-detect observations for constituents with one or more detection above a GWPS is included in Table 1. Non-detect data was handled in accordance with the Stats Plan for the purposes of calculating confidence intervals.

### Time versus Concentration Graphs

The T v. C graphs did not show any potential outliers. The T v. C graphs showed potential trending for some Appendix IV well/constituent pairs. These were tested by the ChemStat™ software to assess whether the trends are statistically significant.

### Outlier Testing

No potential outliers were observed on the T v. C graphs; therefore, no outlier testing was performed.

### Trend Analysis

Visual trends apparent in the T v. C graphs were evaluated in ChemStat™ using the Mann-Kendall Trend Analysis to determine if a subset of data should be used in calculating the confidence interval. Trends were evaluated using a 95-percent (one-tailed) confidence level, i.e., a significance level ( $\alpha$ ) of 0.05. A statistically significant decreasing trend was identified for arsenic at MW-16-01 as a result of pilot scale remedial injections completed in the area in November 2022. No other statistically significant trends were identified.

### Distribution of the Data Sets

ChemStat™ was utilized to evaluate each data set for normality. If the skewness coefficient was calculated to be between negative one and one, then the data were assumed to be approximately normally distributed. If the skewness coefficient was calculated as greater than one (or less than negative one) then the calculation was performed on the natural log (Ln) of the data. If the Ln of the data still determined that the data appeared to be skewed, then the Shapiro-Wilk test of normality (Shapiro-Wilk) was performed. The Shapiro-Wilk statistic was calculated on both non-transformed data, and the Ln-transformed data. If the Shapiro-Wilk statistic indicated that normal distributional assumptions were not valid, then the parameter was considered a candidate for non-parametric statistical evaluation. The data distributions are summarized in Table 1.

### Confidence Intervals

Variability is recognized in the data set due to changing groundwater quality in response to the operation of the groundwater extraction system and as a result of pilot study activities influencing select areas. Calculating a confidence interval around a trending data set incorporates not only variability present naturally in the underlying dataset but can exaggerate variability. Groundwater conditions are re-equilibrating following shutdown of the extraction system and pilot test activities at the BAB in late 2022 and 2023. Because hydrogeologic conditions are in the process of stabilizing, temporary trending and sporadic outlier data are not unexpected. Therefore, all data is used in the statistical evaluation.



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Table 1 presents the calculated confidence intervals for each well-constituent pair. For normal and lognormal distributions, confidence intervals are calculated for 99 percent confidence using parametric methods. For non-normal datasets, a nonparametric confidence interval is utilized, resulting in the highest and lowest values from the contributing dataset as the confidence limits.

The confidence intervals calculated through the above-described process will be compared to the GWPS to determine if an exceedance has occurred. An exceedance of the standard occurs when the 99 percent lower confidence level of the downgradient data exceeds the corresponding GWPS.

### Attachments

Table 1 Summary of Descriptive Statistics and Confidence Interval Calculations

Attachment A ChemStat™ Outputs

**Table 1**  
**Summary of Descriptive Statistics and**  
**Confidence Interval Calculations**

**Table 1**  
 Summary of Descriptive Statistics and Confidence Interval Calculations  
 Assessment Monitoring Statistical Evaluation - October 2023  
 DTE Electric Company – River Rouge Power Plant

| Parameter <sup>(1)</sup>      | Percent Non-Detect | Outliers? | Trend? | Skewness           |                   | Shapiro-Wilks Test (5% Critical Value) |                  | Parametric / Non-Parametric | Confidence Interval <sup>(2)</sup> |
|-------------------------------|--------------------|-----------|--------|--------------------|-------------------|--|------------------|-----------------------------|------------------------------------|
|                               |                    |           |        | Un-Transformed     | Natural Log       | Un-Transformed                         | Natural Log      |                             |                                    |
| <b>MW-16-01</b>               |                    |           |        |                    |                   |  |                  |                             |                                    |
| Arsenic                       | 0%                 | No        | Yes    | -1 < -0.149029 < 1 | --                | --                                     | --               | Parametric                  | [19, 180]                          |
| Lithium                       | 0%                 | No        | No     | -1 < 0.605963 < 1  | --                | --                                     | --               | Parametric                  | [35, 65]                           |
| <b>MW-17-05<sup>(3)</sup></b> |                    |           |        |                    |                   |  |                  |                             |                                    |
| Lithium                       | 0%                 | No        | No     | 1 < 1.61448        | 1 < 1.21858       | 0.788 > 0.69658                        | 0.788 < 0.847704 | Parametric                  | [7.3, 33]                          |
| <b>MW-17-14<sup>(3)</sup></b> |                    |           |        |                    |                   |  |                  |                             |                                    |
| Lithium                       | 17%                | No        | No     | 1 < 1.11076        | -1 < 0.268687 < 1 | --                                     | --               | Parametric                  | [2.0, 71]                          |
| <b>MW-17-15<sup>(3)</sup></b> |                    |           |        |                    |                   |  |                  |                             |                                    |
| Arsenic                       | 0%                 | No        | No     | -1 < 0.207663 < 1  | --                | --                                     | --               | Parametric                  | [8.1, 32]                          |
| Lithium                       | 0%                 | No        | No     | 1 < 1.16116        | -1 < 0.780485 < 1 | --                                     | --               | Parametric                  | [24, 68]                           |

**Notes:**



- (1) Well-parameter combinations that have one or more direct exceedances of the Groundwater Protection Standard within the most recent eight sampling events.
- (2) The most recent eight data points are used to calculate the confidence interval to be representative of current conditions, except where noted.
- (3) The most recent six data points are used to screen for direct exceedances of the Groundwater Protection Standards and for calculation of the confidence intervals.

# **Attachment A**

## **ChemStat™ Confidence Interval Outputs**

## Concentrations (ug/L)

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Measurements: 24

Total Non-Detect: 14

Percent Non-Detects: 58.3333%

Total Background Measurements: 0

There are 0 background locations

| Loc.                             | Meas.    | ND       | Date       | Conc.     | Original  |
|----------------------------------|----------|----------|------------|-----------|-----------|
| There are 3 compliance locations |          |          |            |           |           |
| Loc.                             | Meas.    | ND       | Date       | Conc.     | Original  |
| MW-16-01                         | 8        | 0 (0%)   | 3/20/2020  | 170       | 170       |
|                                  |          |          | 11/11/2020 | 130       | 130       |
|                                  |          |          | 2/25/2021  | 110       | 110       |
|                                  |          |          | 10/20/2021 | 200       | 200       |
|                                  |          |          | 2/22/2022  | 140       | 140       |
|                                  |          |          | 12/1/2022  | 28        | 28        |
|                                  |          |          | 4/3/2023   | 10        | 10        |
|                                  |          |          | 10/30/2023 | 5.2       | 5.2       |
|                                  |          |          | 8/5/2016   | 37        | 37        |
|                                  |          |          | 9/30/2016  | 37        | 37        |
|                                  |          |          | 11/18/2016 | 39        | 39        |
|                                  |          |          | 1/20/2017  | 40        | 40        |
|                                  |          |          | 3/10/2017  | 38        | 38        |
|                                  |          |          | 4/28/2017  | 37        | 37        |
|                                  |          |          | 6/16/2017  | 35        | 35        |
|                                  |          |          | 7/21/2017  | 36        | 36        |
|                                  |          |          | 4/6/2018   | 160       | 160       |
| 5/30/2018                        | 170      | 170      |            |           |           |
| 10/16/2018                       | 160      | 160      |            |           |           |
| 3/29/2019                        | 170      | 170      |            |           |           |
| 9/26/2019                        | 140      | 140      |            |           |           |
| MW-16-02                         | 8        | 6 (75%)  | 3/20/2020  | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 11/11/2020 | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 2/25/2021  | 2.6       | 2.6       |
|                                  |          |          | 10/20/2021 | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 2/22/2022  | 2.4       | 2.4       |
|                                  |          |          | 12/1/2022  | ND<2.5    | ND<5      |
|                                  |          |          | 4/3/2023   | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 10/30/2023 | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 8/5/2016   | 24        | 24        |
|                                  |          |          | 9/30/2016  | 27        | 27        |
|                                  |          |          | 11/18/2016 | 30        | 30        |
|                                  |          |          | 1/20/2017  | 31        | 31        |
|                                  |          |          | 3/10/2017  | 29        | 29        |
|                                  |          |          | 4/28/2017  | 30        | 30        |
|                                  |          |          | 6/16/2017  | 30        | 30        |
|                                  |          |          | 7/21/2017  | 27        | 27        |
|                                  |          |          | 4/6/2018   | 15        | 15        |
| 5/30/2018                        | ND<2.5 U | ND<5 U   |            |           |           |
| 10/16/2018                       | 7.9      | 7.9      |            |           |           |
| 3/29/2019                        | ND<2.5 U | ND<5 U   |            |           |           |
| 9/26/2019                        | ND<2.5 U | ND<5 U   |            |           |           |
| MW-16-03                         | 8        | 8 (100%) | 3/20/2020  | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 11/11/2020 | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 2/25/2021  | ND<2.5    | ND<5      |
|                                  |          |          | 10/20/2021 | ND<2.5 U  | ND<5 U    |
|                                  |          |          | 2/22/2022  | ND<0.18 J | ND<0.36 J |
|                                  |          |          | 11/30/2022 | ND<2.5    | ND<5      |

|            |          |        |
|------------|----------|--------|
| 4/3/2023   | ND<2.5 U | ND<5 U |
| 10/30/2023 | ND<2.5 U | ND<5 U |
| 8/5/2016   | 91       | 91     |
| 9/30/2016  | 40       | 40     |
| 11/18/2016 | 21       | 21     |
| 1/20/2017  | 13       | 13     |
| 3/10/2017  | 12       | 12     |
| 4/28/2017  | 12       | 12     |
| 6/16/2017  | 12       | 12     |
| 7/21/2017  | 12       | 12     |
| 4/6/2018   | ND<2.5 U | ND<5 U |
| 5/30/2018  | ND<2.5 U | ND<5 U |
| 10/16/2018 | ND<2.5 U | ND<5 U |
| 3/29/2019  | ND<2.5 U | ND<5 U |
| 9/26/2019  | ND<2.5 U | ND<5 U |

---

There are 0 unused locations

---

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

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## Concentrations (ug/L)

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Measurements: 24

Total Non-Detect: 4

Percent Non-Detects: 16.6667%

Total Background Measurements: 0

There are 0 background locations

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

There are 3 compliance locations

| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

|          |   |        |            |    |    |
|----------|---|--------|------------|----|----|
| MW-16-01 | 8 | 0 (0%) | 3/20/2020  | 52 | 52 |
|          |   |        | 11/11/2020 | 46 | 46 |
|          |   |        | 2/25/2021  | 38 | 38 |
|          |   |        | 10/20/2021 | 34 | 34 |
|          |   |        | 2/22/2022  | 40 | 40 |
|          |   |        | 12/1/2022  | 75 | 75 |
|          |   |        | 4/3/2023   | 66 | 66 |
|          |   |        | 10/30/2023 | 52 | 52 |
|          |   |        | 8/5/2016   | 44 | 44 |
|          |   |        | 9/30/2016  | 53 | 53 |
|          |   |        | 11/18/2016 | 50 | 50 |
|          |   |        | 1/20/2017  | 48 | 48 |
|          |   |        | 3/10/2017  | 49 | 49 |
|          |   |        | 4/28/2017  | 53 | 53 |
|          |   |        | 6/16/2017  | 51 | 51 |
|          |   |        | 7/21/2017  | 44 | 44 |
|          |   |        | 4/6/2018   | 49 | 49 |

|          |   |        |            |    |    |
|----------|---|--------|------------|----|----|
| MW-16-02 | 8 | 0 (0%) | 3/20/2020  | 14 | 14 |
|          |   |        | 11/11/2020 | 13 | 13 |
|          |   |        | 2/25/2021  | 14 | 14 |
|          |   |        | 10/20/2021 | 14 | 14 |
|          |   |        | 2/22/2022  | 16 | 16 |
|          |   |        | 12/1/2022  | 11 | 11 |
|          |   |        | 4/3/2023   | 20 | 20 |
|          |   |        | 10/30/2023 | 31 | 31 |
|          |   |        | 8/5/2016   | 57 | 57 |
|          |   |        | 9/30/2016  | 64 | 64 |
|          |   |        | 11/18/2016 | 62 | 62 |
|          |   |        | 1/20/2017  | 64 | 64 |
|          |   |        | 3/10/2017  | 58 | 58 |
|          |   |        | 4/28/2017  | 71 | 71 |
|          |   |        | 6/16/2017  | 64 | 64 |
|          |   |        | 7/21/2017  | 52 | 52 |
|          |   |        | 4/6/2018   | 45 | 45 |

|          |   |         |            |        |        |
|----------|---|---------|------------|--------|--------|
| MW-16-03 | 8 | 4 (50%) | 3/20/2020  | ND<4 U | ND<8 U |
|          |   |         | 11/11/2020 | ND<4 U | ND<8 U |
|          |   |         | 2/25/2021  | 4.8    | 4.8    |
|          |   |         | 10/20/2021 | ND<4 U | ND<8 U |
|          |   |         | 2/22/2022  | 7.9    | 7.9    |
|          |   |         | 11/30/2022 | ND<4   | ND<8   |

|            |        |        |
|------------|--------|--------|
| 4/3/2023   | 8.8    | 8.8    |
| 10/30/2023 | 8.8    | 8.8    |
| 8/5/2016   | 29     | 29     |
| 9/30/2016  | 44     | 44     |
| 11/18/2016 | 44     | 44     |
| 1/20/2017  | 49     | 49     |
| 3/10/2017  | 45     | 45     |
| 4/28/2017  | 51     | 51     |
| 6/16/2017  | 49     | 49     |
| 7/21/2017  | 41     | 41     |
| 4/6/2018   | 15     | 15     |
| 5/30/2018  | 11     | 11     |
| 10/16/2018 | ND<4 U | ND<8 U |
| 3/29/2019  | ND<4 U | ND<8 U |
| 9/26/2019  | ND<4 U | ND<8 U |

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There are 0 unused locations

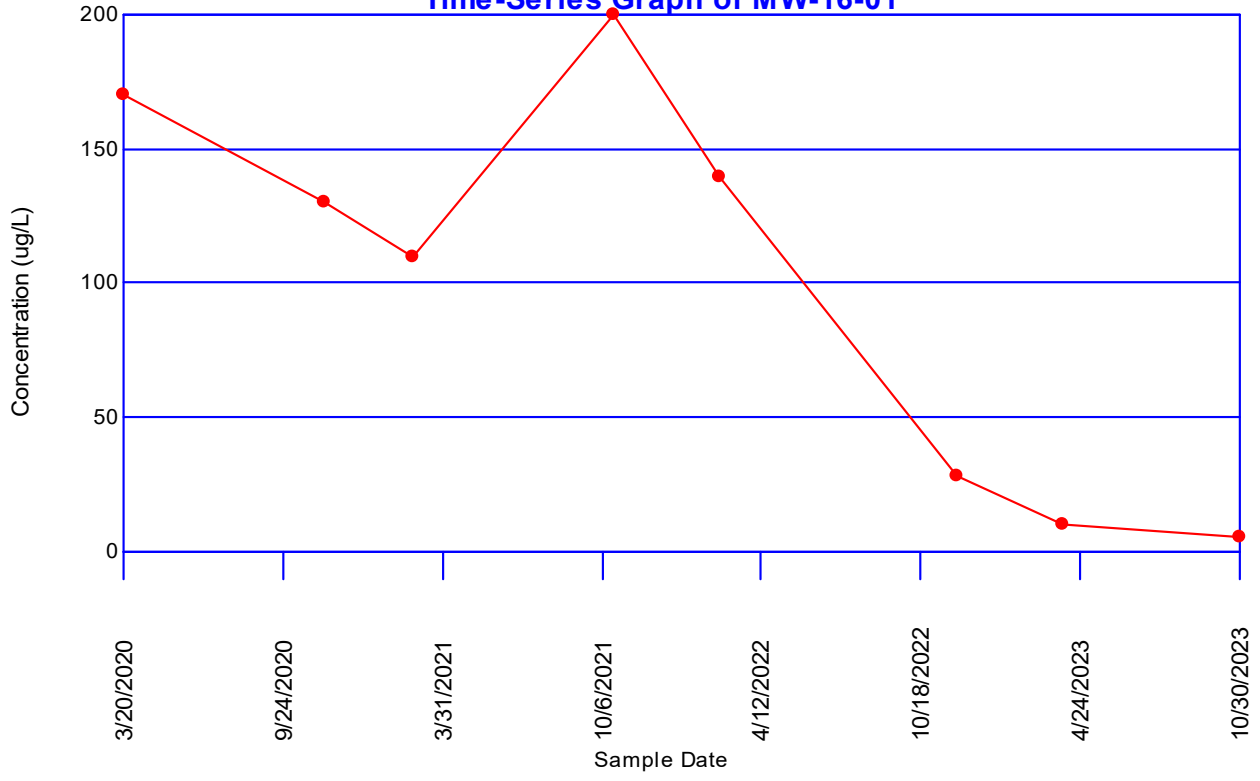
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| Loc. | Meas. | ND | Date | Conc. | Original |
|------|-------|----|------|-------|----------|
|------|-------|----|------|-------|----------|

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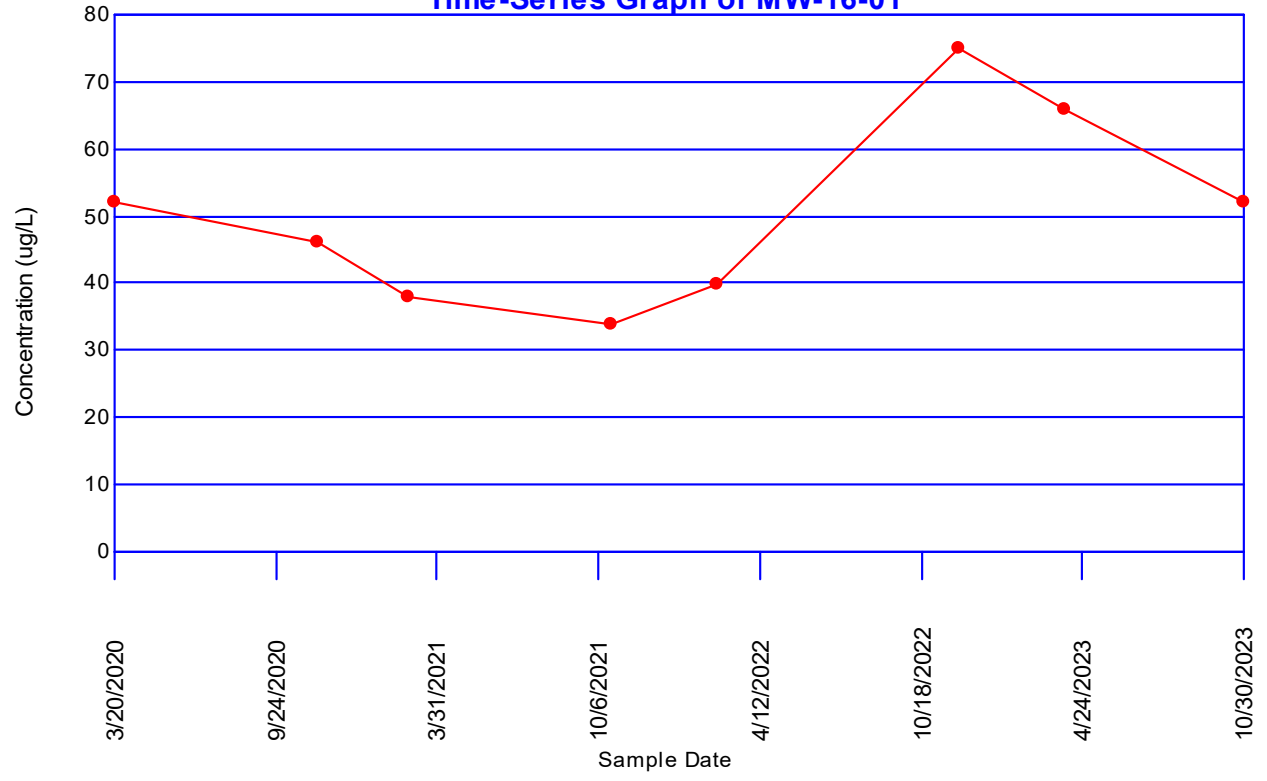


**Arsenic**  
**Time-Series Graph of MW-16-01**



# Lithium

## Time-Series Graph of MW-16-01



# Mann-Kendall Trend Analysis

Parameter: Arsenic

Location: MW-16-01

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

---

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 130       | 170       | -40            | 0                | 1                |
| 110       | 170       | -60            | 0                | 2                |
| 200       | 170       | 30             | 1                | 2                |
| 140       | 170       | -30            | 1                | 3                |
| 28        | 170       | -142           | 1                | 4                |
| 10        | 170       | -160           | 1                | 5                |
| 5.2       | 170       | -164.8         | 1                | 6                |
| 110       | 130       | -20            | 1                | 7                |
| 200       | 130       | 70             | 2                | 7                |
| 140       | 130       | 10             | 3                | 7                |
| 28        | 130       | -102           | 3                | 8                |
| 10        | 130       | -120           | 3                | 9                |
| 5.2       | 130       | -124.8         | 3                | 10               |
| 200       | 110       | 90             | 4                | 10               |
| 140       | 110       | 30             | 5                | 10               |
| 28        | 110       | -82            | 5                | 11               |
| 10        | 110       | -100           | 5                | 12               |
| 5.2       | 110       | -104.8         | 5                | 13               |
| 140       | 200       | -60            | 5                | 14               |
| 28        | 200       | -172           | 5                | 15               |
| 10        | 200       | -190           | 5                | 16               |
| 5.2       | 200       | -194.8         | 5                | 17               |
| 28        | 140       | -112           | 5                | 18               |
| 10        | 140       | -130           | 5                | 19               |
| 5.2       | 140       | -134.8         | 5                | 20               |
| 10        | 28        | -18            | 5                | 21               |
| 5.2       | 28        | -22.8          | 5                | 22               |
| 5.2       | 10        | -4.8           | 5                | 23               |

S Statistic = 5 - 23 = -18

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -18$  is 0.016

$S < 0$  or  $0.016 \geq 0.05$  indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Arsenic

Location: MW-16-01

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

---

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 130       | 170       | -40            | 0                | 1                |
| 110       | 170       | -60            | 0                | 2                |
| 200       | 170       | 30             | 1                | 2                |
| 140       | 170       | -30            | 1                | 3                |
| 28        | 170       | -142           | 1                | 4                |
| 10        | 170       | -160           | 1                | 5                |
| 5.2       | 170       | -164.8         | 1                | 6                |
| 110       | 130       | -20            | 1                | 7                |
| 200       | 130       | 70             | 2                | 7                |
| 140       | 130       | 10             | 3                | 7                |
| 28        | 130       | -102           | 3                | 8                |
| 10        | 130       | -120           | 3                | 9                |
| 5.2       | 130       | -124.8         | 3                | 10               |
| 200       | 110       | 90             | 4                | 10               |
| 140       | 110       | 30             | 5                | 10               |
| 28        | 110       | -82            | 5                | 11               |
| 10        | 110       | -100           | 5                | 12               |
| 5.2       | 110       | -104.8         | 5                | 13               |
| 140       | 200       | -60            | 5                | 14               |
| 28        | 200       | -172           | 5                | 15               |
| 10        | 200       | -190           | 5                | 16               |
| 5.2       | 200       | -194.8         | 5                | 17               |
| 28        | 140       | -112           | 5                | 18               |
| 10        | 140       | -130           | 5                | 19               |
| 5.2       | 140       | -134.8         | 5                | 20               |
| 10        | 28        | -18            | 5                | 21               |
| 5.2       | 28        | -22.8          | 5                | 22               |
| 5.2       | 10        | -4.8           | 5                | 23               |

S Statistic = 5 - 23 = -18

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 18$  is 0.016

**S < 0 and 0.016 < 0.05 indicating a downward trend**

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-16-01

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

---

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 46        | 52        | -6             | 0                | 1                |
| 38        | 52        | -14            | 0                | 2                |
| 34        | 52        | -18            | 0                | 3                |
| 40        | 52        | -12            | 0                | 4                |
| 75        | 52        | 23             | 1                | 4                |
| 66        | 52        | 14             | 2                | 4                |
| 52        | 52        | 0              | 2                | 4                |
| 38        | 46        | -8             | 2                | 5                |
| 34        | 46        | -12            | 2                | 6                |
| 40        | 46        | -6             | 2                | 7                |
| 75        | 46        | 29             | 3                | 7                |
| 66        | 46        | 20             | 4                | 7                |
| 52        | 46        | 6              | 5                | 7                |
| 34        | 38        | -4             | 5                | 8                |
| 40        | 38        | 2              | 6                | 8                |
| 75        | 38        | 37             | 7                | 8                |
| 66        | 38        | 28             | 8                | 8                |
| 52        | 38        | 14             | 9                | 8                |
| 40        | 34        | 6              | 10               | 8                |
| 75        | 34        | 41             | 11               | 8                |
| 66        | 34        | 32             | 12               | 8                |
| 52        | 34        | 18             | 13               | 8                |
| 75        | 40        | 35             | 14               | 8                |
| 66        | 40        | 26             | 15               | 8                |
| 52        | 40        | 12             | 16               | 8                |
| 66        | 75        | -9             | 16               | 9                |
| 52        | 75        | -23            | 16               | 10               |
| 52        | 66        | -14            | 16               | 11               |

S Statistic = 16 - 11 = 5

Comparing at 95% confidence level (upward trend)

**Failed to calculate probability for S = 5**

**Table out of range**

Probability of obtaining  $S \geq 5$  is 0.317  
 $S < 0$  or  $0.317 > 0.05$  indicating no  
evidence of an upward trend.

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-16-01

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

---

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 46        | 52        | -6             | 0                | 1                |
| 38        | 52        | -14            | 0                | 2                |
| 34        | 52        | -18            | 0                | 3                |
| 40        | 52        | -12            | 0                | 4                |
| 75        | 52        | 23             | 1                | 4                |
| 66        | 52        | 14             | 2                | 4                |
| 52        | 52        | 0              | 2                | 4                |
| 38        | 46        | -8             | 2                | 5                |
| 34        | 46        | -12            | 2                | 6                |
| 40        | 46        | -6             | 2                | 7                |
| 75        | 46        | 29             | 3                | 7                |
| 66        | 46        | 20             | 4                | 7                |
| 52        | 46        | 6              | 5                | 7                |
| 34        | 38        | -4             | 5                | 8                |
| 40        | 38        | 2              | 6                | 8                |
| 75        | 38        | 37             | 7                | 8                |
| 66        | 38        | 28             | 8                | 8                |
| 52        | 38        | 14             | 9                | 8                |
| 40        | 34        | 6              | 10               | 8                |
| 75        | 34        | 41             | 11               | 8                |
| 66        | 34        | 32             | 12               | 8                |
| 52        | 34        | 18             | 13               | 8                |
| 75        | 40        | 35             | 14               | 8                |
| 66        | 40        | 26             | 15               | 8                |
| 52        | 40        | 12             | 16               | 8                |
| 66        | 75        | -9             | 16               | 9                |
| 52        | 75        | -23            | 16               | 10               |
| 52        | 66        | -14            | 16               | 11               |

S Statistic = 16 - 11 = 5

Comparing at 95% confidence level (downward trend)

**Failed to calculate probability for S = 5**

**Table out of range**

Probability of obtaining  $S \geq 5$  is 0.317  
 $S > 0$  or  $0.317 > 0.05$  indicating no  
evidence of a downward trend.

## Skewness Coefficient

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

---

### Compliance Locations

| Location | Obs. | Mean    | Std. Dev. | Skewness       |
|----------|------|---------|-----------|----------------|
| MW-16-01 | 8    | 99.15   | 75.3708   | -0.149029      |
| MW-16-02 | 21   | 13.2571 | 12.6519   | 0.40875        |
| MW-16-03 | 21   | 11.58   | 20.4034   | <b>3.10205</b> |

---

### All Locations

| Obs. | Mean    | Std. Dev. | Skewness       |
|------|---------|-----------|----------------|
| 50   | 26.2956 | 45.5963   | <b>2.45549</b> |

## Skewness Coefficient

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

---

### Compliance Locations

| Location | Obs. | Mean    | Std. Dev. | Skewness |
|----------|------|---------|-----------|----------|
| MW-16-01 | 8    | 50.375  | 14.1617   | 0.605963 |
| MW-16-02 | 21   | 36.381  | 21.7864   | 0.286305 |
| MW-16-03 | 21   | 20.7762 | 19.3076   | 0.546987 |

---

### All Locations

| Obs. | Mean   | Std. Dev. | Skewness |
|------|--------|-----------|----------|
| 50   | 32.066 | 22.1783   | 0.215322 |



# Confidence Interval

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

---

## Compliance Locations

### Location MW-16-01

Mean 99.15  
Std Dev 75.3708  
Degrees of Freedom 7

Comparison Level 32

Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [19.2619, 179.038] | 99.15     | FALSE       |
| 95%        | 1.89458 | [48.6641, 149.636] | 99.15     | TRUE        |

---

### Location MW-16-02

Mean 13.2571  
Std Dev 12.6519  
Degrees of Freedom 20

Comparison Level 32

Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.52798 | [6.27775, 20.2365] | 13.2571   | FALSE       |
| 95%        | 1.72472 | [8.49543, 18.0189] | 13.2571   | FALSE       |

---

### Location MW-16-03

Mean 11.58  
Std Dev 20.4034  
Degrees of Freedom 20

Comparison Level 32

Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval            | Mid-Point | Significant |
|------------|---------|---------------------|-----------|-------------|
| 99%        | 2.52798 | [0.324446, 22.8356] | 11.58     | FALSE       |
| 95%        | 1.72472 | [3.90087, 19.2591]  | 11.58     | FALSE       |

---

# Confidence Interval

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

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## Compliance Locations

### Location MW-16-01

Mean 50.375  
Std Dev 14.1617  
Degrees of Freedom 7

Comparison Level 40

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.99795 | [35.3645, 65.3855] | 50.375    | FALSE       |
| 95%        | 1.89458 | [40.889, 59.861]   | 50.375    | TRUE        |

---

### Location MW-16-02

Mean 36.381  
Std Dev 21.7864  
Degrees of Freedom 20

Comparison Level 40

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.52798 | [24.3625, 48.3994] | 36.381    | FALSE       |
| 95%        | 1.72472 | [28.1813, 44.5806] | 36.381    | FALSE       |

---

### Location MW-16-03

Mean 20.7762  
Std Dev 19.3076  
Degrees of Freedom 20

Comparison Level 40

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.52798 | [10.1252, 31.4272] | 20.7762   | FALSE       |
| 95%        | 1.72472 | [13.5095, 28.0429] | 20.7762   | FALSE       |

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## Concentrations (ug/L)

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements: 48

Total Non-Detect: 40

Percent Non-Detects: 83.3333%

Total Background Measurements: 2

There are 2 background locations

| Loc.     | Meas. | ND     | Date      | Conc. | Original |
|----------|-------|--------|-----------|-------|----------|
| MW-17-06 | 1     | 0 (0%) | 12/1/2022 | 12    | 12       |
| MW-17-07 | 1     | 0 (0%) | 12/1/2022 | 17    | 17       |

There are 6 compliance locations

| Loc.       | Meas.  | ND        | Date       | Conc.  | Original |
|------------|--------|-----------|------------|--------|----------|
| MW-16-04S  | 16     | 16 (100%) | 8/5/2016   | ND<5 U | ND<5 U   |
|            |        |           | 9/30/2016  | ND<5 U | ND<5 U   |
|            |        |           | 11/18/2016 | ND<5 U | ND<5 U   |
|            |        |           | 1/20/2017  | ND<5 U | ND<5 U   |
|            |        |           | 3/10/2017  | ND<5 U | ND<5 U   |
|            |        |           | 4/28/2017  | ND<5 U | ND<5 U   |
|            |        |           | 6/16/2017  | ND<5 U | ND<5 U   |
|            |        |           | 7/21/2017  | ND<5 U | ND<5 U   |
|            |        |           | 4/6/2018   | ND<5 U | ND<5 U   |
|            |        |           | 5/30/2018  | ND<5 U | ND<5 U   |
|            |        |           | 10/16/2018 | ND<5 U | ND<5 U   |
|            |        |           | 9/26/2019  | ND<5 U | ND<5 U   |
|            |        |           | 11/12/2020 | ND<5 U | ND<5 U   |
|            |        |           | 10/21/2021 | ND<5 U | ND<5 U   |
| 12/1/2022  | ND<5   | ND<5      |            |        |          |
| 10/30/2023 | ND<5 U | ND<5 U    |            |        |          |
| MW-17-05   | 6      | 6 (100%)  | 10/15/2018 | ND<5 U | ND<5 U   |
|            |        |           | 9/27/2019  | ND<5 U | ND<5 U   |
|            |        |           | 11/13/2020 | ND<5 U | ND<5 U   |
|            |        |           | 10/21/2021 | ND<5 U | ND<5 U   |
|            |        |           | 11/30/2022 | ND<5   | ND<5     |
|            |        |           | 10/31/2023 | ND<5 U | ND<5 U   |
| MW-17-14   | 6      | 6 (100%)  | 10/16/2018 | ND<5 U | ND<5 U   |
|            |        |           | 9/27/2019  | ND<5 U | ND<5 U   |
|            |        |           | 11/12/2020 | ND<5 U | ND<5 U   |
|            |        |           | 10/21/2021 | ND<5 U | ND<5 U   |
|            |        |           | 12/1/2022  | ND<5   | ND<5     |
|            |        |           | 10/31/2023 | ND<5 U | ND<5 U   |
| MW-17-15   | 6      | 0 (0%)    | 10/16/2018 | 34     | 34       |
|            |        |           | 9/26/2019  | 20     | 20       |
|            |        |           | 11/12/2020 | 18     | 18       |
|            |        |           | 10/21/2021 | 23     | 23       |
|            |        |           | 12/1/2022  | 7.2    | 7.2      |
|            |        |           | 10/31/2023 | 18     | 18       |
| MW-17-18   | 6      | 6 (100%)  | 10/15/2018 | ND<5 U | ND<5 U   |
|            |        |           | 9/27/2019  | ND<5 U | ND<5 U   |
|            |        |           | 11/11/2020 | ND<5 U | ND<5 U   |
|            |        |           | 10/21/2021 | ND<5 U | ND<5 U   |
|            |        |           | 11/30/2022 | ND<5   | ND<5     |
|            |        |           | 10/31/2023 | ND<5 U | ND<5 U   |
| MW-17-20   | 6      | 6 (100%)  | 10/16/2018 | ND<5 U | ND<5 U   |

|            |        |        |
|------------|--------|--------|
| 9/26/2019  | ND<5 U | ND<5 U |
| 11/12/2020 | ND<5 U | ND<5 U |
| 10/20/2021 | ND<5 U | ND<5 U |
| 11/30/2022 | ND<5   | ND<5   |
| 10/31/2023 | ND<5 U | ND<5 U |

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## Concentrations (ug/L)

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements: 48

Total Non-Detect: 1

Percent Non-Detects: 2.08333%

Total Background Measurements: 2

There are 2 background locations

| Loc.     | Meas. | ND     | Date      | Conc. | Original |
|----------|-------|--------|-----------|-------|----------|
| MW-17-06 | 1     | 0 (0%) | 12/1/2022 | 19    | 19       |
| MW-17-07 | 1     | 0 (0%) | 12/1/2022 | 25    | 25       |

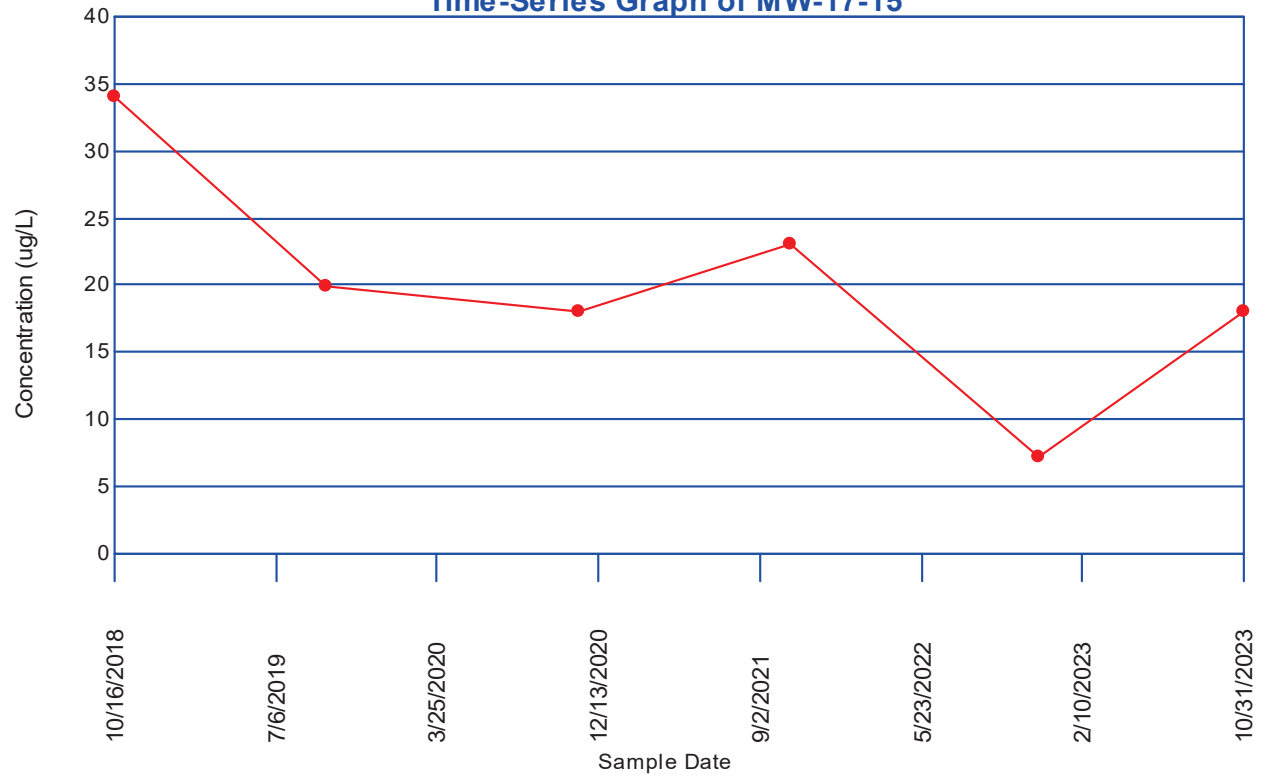
There are 6 compliance locations

| Loc.       | Meas. | ND           | Date       | Conc.  | Original |
|------------|-------|--------------|------------|--------|----------|
| MW-16-04S  | 16    | 0 (0%)       | 8/5/2016   | 18     | 18       |
|            |       |              | 9/30/2016  | 21     | 21       |
|            |       |              | 11/18/2016 | 18     | 18       |
|            |       |              | 1/20/2017  | 25     | 25       |
|            |       |              | 3/10/2017  | 24     | 24       |
|            |       |              | 4/28/2017  | 26     | 26       |
|            |       |              | 6/16/2017  | 26     | 26       |
|            |       |              | 7/21/2017  | 17     | 17       |
|            |       |              | 4/6/2018   | 27     | 27       |
|            |       |              | 5/30/2018  | 26     | 26       |
|            |       |              | 10/16/2018 | 24     | 24       |
|            |       |              | 9/26/2019  | 19     | 19       |
|            |       |              | 11/12/2020 | 21     | 21       |
|            |       |              | 10/21/2021 | 36     | 36       |
| 12/1/2022  | 39    | 39           |            |        |          |
| 10/30/2023 | 37    | 37           |            |        |          |
| MW-17-05   | 6     | 0 (0%)       | 10/15/2018 | 13     | 13       |
|            |       |              | 9/27/2019  | 9.2    | 9.2      |
|            |       |              | 11/13/2020 | 14     | 14       |
|            |       |              | 10/21/2021 | 11     | 11       |
|            |       |              | 11/30/2022 | 17     | 17       |
|            |       |              | 10/31/2023 | 43     | 43       |
| MW-17-14   | 6     | 1 (16.6667%) | 10/16/2018 | 45     | 45       |
|            |       |              | 9/27/2019  | 14     | 14       |
|            |       |              | 11/12/2020 | 12     | 12       |
|            |       |              | 10/21/2021 | ND<8 U | ND<8 U   |
|            |       |              | 12/1/2022  | 15     | 15       |
|            |       |              | 10/31/2023 | 24     | 24       |
| MW-17-15   | 6     | 0 (0%)       | 10/16/2018 | 77     | 77       |
|            |       |              | 9/26/2019  | 49     | 49       |
|            |       |              | 11/12/2020 | 34     | 34       |
|            |       |              | 10/21/2021 | 30     | 30       |
|            |       |              | 12/1/2022  | 28     | 28       |
|            |       |              | 10/31/2023 | 41     | 41       |
| MW-17-18   | 6     | 0 (0%)       | 10/15/2018 | 22     | 22       |
|            |       |              | 9/27/2019  | 17     | 17       |
|            |       |              | 11/11/2020 | 20     | 20       |
|            |       |              | 10/21/2021 | 20     | 20       |
|            |       |              | 11/30/2022 | 19     | 19       |
|            |       |              | 10/31/2023 | 19     | 19       |
| MW-17-20   | 6     | 0 (0%)       | 10/16/2018 | 32     | 32       |

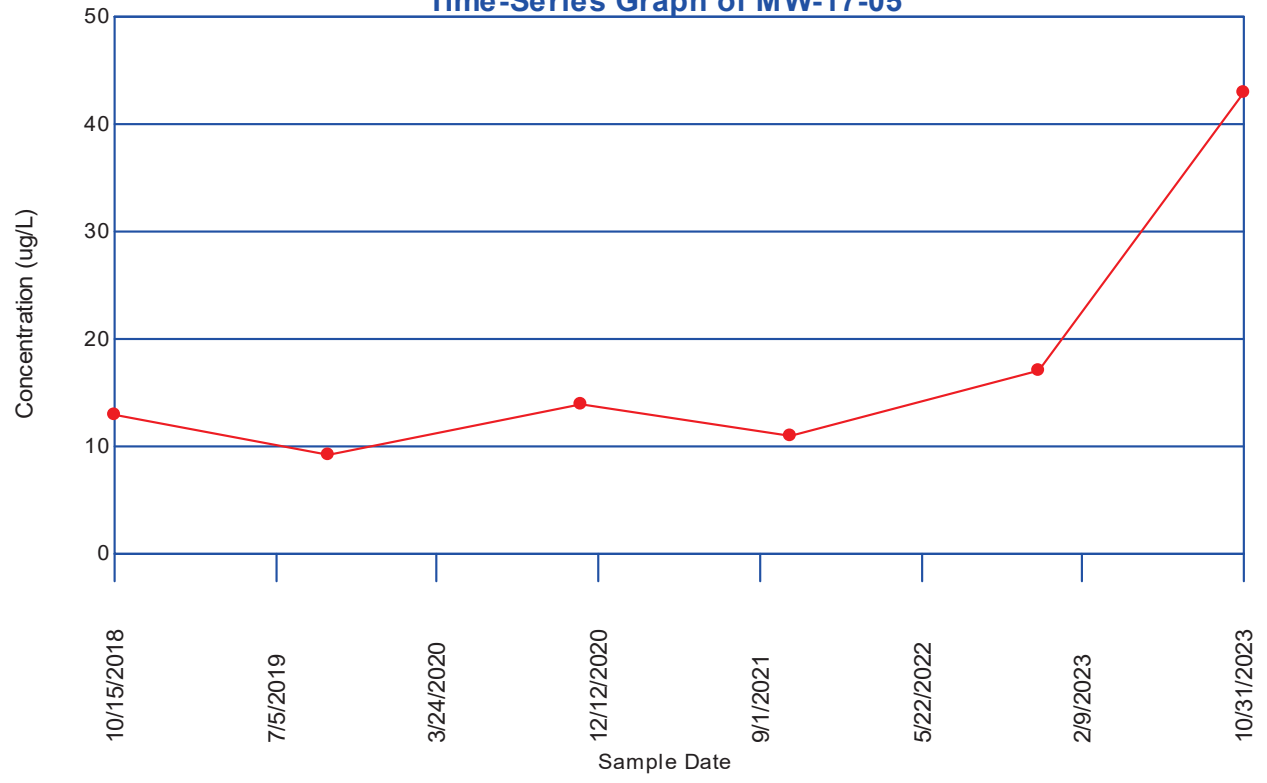
|            |    |    |
|------------|----|----|
| 9/26/2019  | 25 | 25 |
| 11/12/2020 | 34 | 34 |
| 10/20/2021 | 29 | 29 |
| 11/30/2022 | 28 | 28 |
| 10/31/2023 | 30 | 30 |

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**Arsenic**  
**Time-Series Graph of MW-17-15**



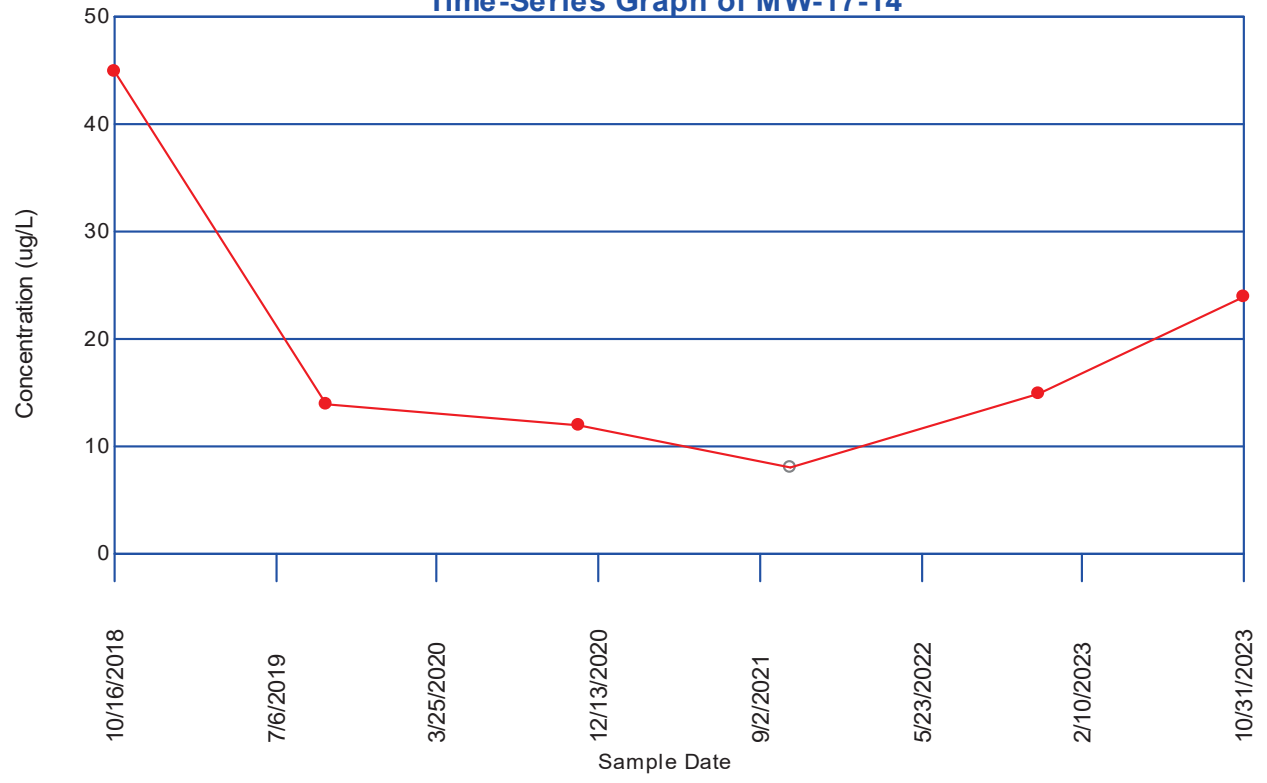
**Lithium**  
**Time-Series Graph of MW-17-05**



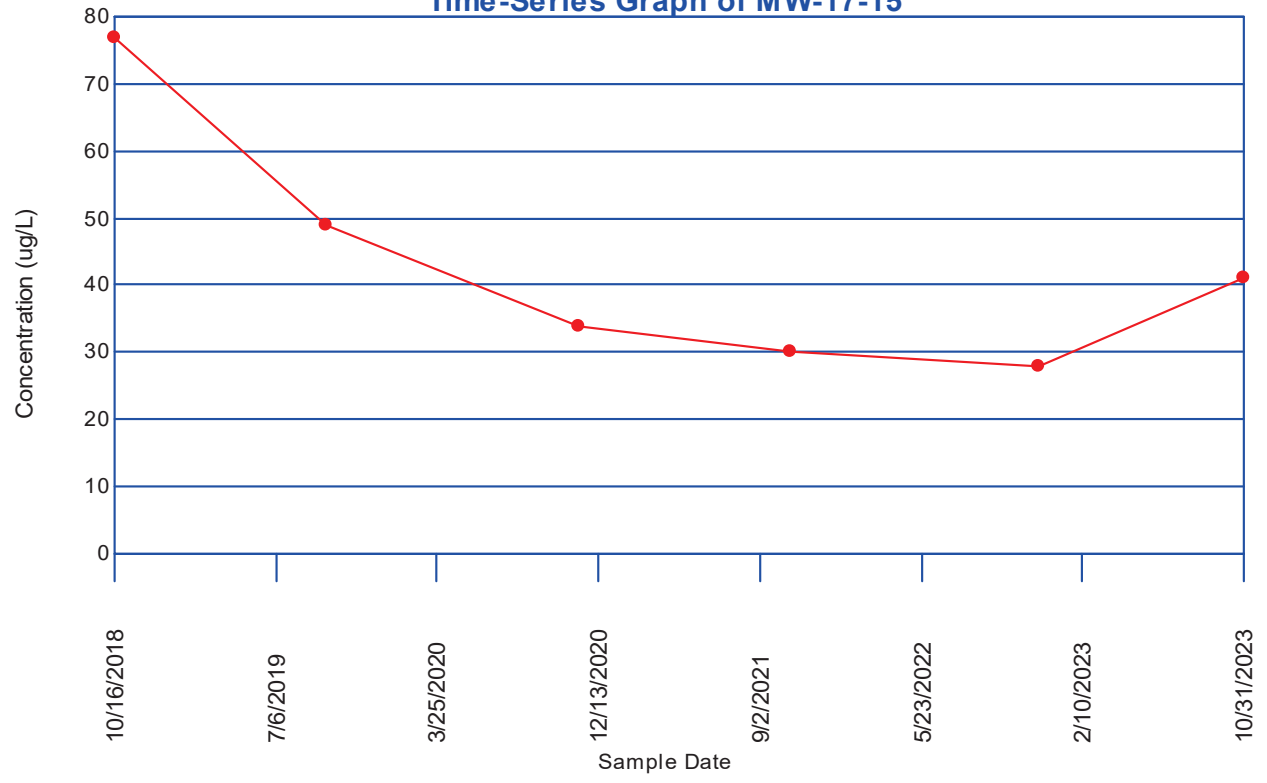


# Lithium

## Time-Series Graph of MW-17-14



**Lithium**  
**Time-Series Graph of MW-17-15**



# Mann-Kendall Trend Analysis

Parameter: Arsenic

Location: MW-17-15

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

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| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 20        | 34        | -14            | 0                | 1                |
| 18        | 34        | -16            | 0                | 2                |
| 23        | 34        | -11            | 0                | 3                |
| 7.2       | 34        | -26.8          | 0                | 4                |
| 18        | 34        | -16            | 0                | 5                |
| 18        | 20        | -2             | 0                | 6                |
| 23        | 20        | 3              | 1                | 6                |
| 7.2       | 20        | -12.8          | 1                | 7                |
| 18        | 20        | -2             | 1                | 8                |
| 23        | 18        | 5              | 2                | 8                |
| 7.2       | 18        | -10.8          | 2                | 9                |
| 18        | 18        | 0              | 2                | 9                |
| 7.2       | 23        | -15.8          | 2                | 10               |
| 18        | 23        | -5             | 2                | 11               |
| 18        | 7.2       | 10.8           | 3                | 11               |

S Statistic = 3 - 11 = -8

Comparing at 95% confidence level (upward trend)

**Failed to calculate probability for S = -8**

**Table out of range**

Probability of obtaining  $S \leq -8$  is 0.102  
 $S < 0$  or  $0.102 > 0.05$  indicating no  
evidence of an upward trend.

# Mann-Kendall Trend Analysis

Parameter: Arsenic

Location: MW-17-15

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

---

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 20        | 34        | -14            | 0                | 1                |
| 18        | 34        | -16            | 0                | 2                |
| 23        | 34        | -11            | 0                | 3                |
| 7.2       | 34        | -26.8          | 0                | 4                |
| 18        | 34        | -16            | 0                | 5                |
| 18        | 20        | -2             | 0                | 6                |
| 23        | 20        | 3              | 1                | 6                |
| 7.2       | 20        | -12.8          | 1                | 7                |
| 18        | 20        | -2             | 1                | 8                |
| 23        | 18        | 5              | 2                | 8                |
| 7.2       | 18        | -10.8          | 2                | 9                |
| 18        | 18        | 0              | 2                | 9                |
| 7.2       | 23        | -15.8          | 2                | 10               |
| 18        | 23        | -5             | 2                | 11               |
| 18        | 7.2       | 10.8           | 3                | 11               |

S Statistic = 3 - 11 = -8

Comparing at 95% confidence level (downward trend)

**Failed to calculate probability for S = -8**

**Table out of range**

Probability of obtaining  $S \leq -8$  is 0.102  
 $S > 0$  or  $0.102 > 0.05$  indicating no  
evidence of an downward trend.

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-17-05

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

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| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 9.2       | 13        | -3.8           | 0                | 1                |
| 14        | 13        | 1              | 1                | 1                |
| 11        | 13        | -2             | 1                | 2                |
| 17        | 13        | 4              | 2                | 2                |
| 43        | 13        | 30             | 3                | 2                |
| 14        | 9.2       | 4.8            | 4                | 2                |
| 11        | 9.2       | 1.8            | 5                | 2                |
| 17        | 9.2       | 7.8            | 6                | 2                |
| 43        | 9.2       | 33.8           | 7                | 2                |
| 11        | 14        | -3             | 7                | 3                |
| 17        | 14        | 3              | 8                | 3                |
| 43        | 14        | 29             | 9                | 3                |
| 17        | 11        | 6              | 10               | 3                |
| 43        | 11        | 32             | 11               | 3                |
| 43        | 17        | 26             | 12               | 3                |

S Statistic = 12 - 3 = 9

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq 9$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-17-05

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

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| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 9.2       | 13        | -3.8           | 0                | 1                |
| 14        | 13        | 1              | 1                | 1                |
| 11        | 13        | -2             | 1                | 2                |
| 17        | 13        | 4              | 2                | 2                |
| 43        | 13        | 30             | 3                | 2                |
| 14        | 9.2       | 4.8            | 4                | 2                |
| 11        | 9.2       | 1.8            | 5                | 2                |
| 17        | 9.2       | 7.8            | 6                | 2                |
| 43        | 9.2       | 33.8           | 7                | 2                |
| 11        | 14        | -3             | 7                | 3                |
| 17        | 14        | 3              | 8                | 3                |
| 43        | 14        | 29             | 9                | 3                |
| 17        | 11        | 6              | 10               | 3                |
| 43        | 11        | 32             | 11               | 3                |
| 43        | 17        | 26             | 12               | 3                |

S Statistic = 12 - 3 = 9

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 9$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-17-14

Original Data (Not Transformed)

Aitchison's Adjustment

95% Confidence Level

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| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 14        | 45        | -31            | 0                | 1                |
| 12        | 45        | -33            | 0                | 2                |
| ND<8 U    | 45        | -37            | 0                | 3                |
| 15        | 45        | -30            | 0                | 4                |
| 24        | 45        | -21            | 0                | 5                |
| 12        | 14        | -2             | 0                | 6                |
| ND<8 U    | 14        | -6             | 0                | 7                |
| 15        | 14        | 1              | 1                | 7                |
| 24        | 14        | 10             | 2                | 7                |
| ND<8 U    | 12        | -4             | 2                | 8                |
| 15        | 12        | 3              | 3                | 8                |
| 24        | 12        | 12             | 4                | 8                |
| 15        | ND<8 U    | 7              | 5                | 8                |
| 24        | ND<8 U    | 16             | 6                | 8                |
| 24        | 15        | 9              | 7                | 8                |

S Statistic = 7 - 8 = -1

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -1$  is 0.5

$S < 0$  or  $0.5 \geq 0.05$  indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-17-14

Original Data (Not Transformed)

Aitchison's Adjustment

95% Confidence Level

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| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 14        | 45        | -31            | 0                | 1                |
| 12        | 45        | -33            | 0                | 2                |
| ND<8 U    | 45        | -37            | 0                | 3                |
| 15        | 45        | -30            | 0                | 4                |
| 24        | 45        | -21            | 0                | 5                |
| 12        | 14        | -2             | 0                | 6                |
| ND<8 U    | 14        | -6             | 0                | 7                |
| 15        | 14        | 1              | 1                | 7                |
| 24        | 14        | 10             | 2                | 7                |
| ND<8 U    | 12        | -4             | 2                | 8                |
| 15        | 12        | 3              | 3                | 8                |
| 24        | 12        | 12             | 4                | 8                |
| 15        | ND<8 U    | 7              | 5                | 8                |
| 24        | ND<8 U    | 16             | 6                | 8                |
| 24        | 15        | 9              | 7                | 8                |

S Statistic = 7 - 8 = -1

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 1$  is 0.5

$S > 0$  or  $0.5 > 0.05$  indicating no evidence of a downward trend



# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-17-15

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

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| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 49        | 77        | -28            | 0                | 1                |
| 34        | 77        | -43            | 0                | 2                |
| 30        | 77        | -47            | 0                | 3                |
| 28        | 77        | -49            | 0                | 4                |
| 41        | 77        | -36            | 0                | 5                |
| 34        | 49        | -15            | 0                | 6                |
| 30        | 49        | -19            | 0                | 7                |
| 28        | 49        | -21            | 0                | 8                |
| 41        | 49        | -8             | 0                | 9                |
| 30        | 34        | -4             | 0                | 10               |
| 28        | 34        | -6             | 0                | 11               |
| 41        | 34        | 7              | 1                | 11               |
| 28        | 30        | -2             | 1                | 12               |
| 41        | 30        | 11             | 2                | 12               |
| 41        | 28        | 13             | 3                | 12               |

S Statistic = 3 - 12 = -9

Comparing at 95% confidence level (upward trend)

Probability of obtaining  $S \geq -9$  is 0.068

$S < 0$  or  $0.068 \geq 0.05$  indicating no evidence of an upward trend

# Mann-Kendall Trend Analysis

Parameter: Lithium

Location: MW-17-15

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

---

| <b>Xj</b> | <b>Xk</b> | <b>Xj - Xk</b> | <b>Positives</b> | <b>Negatives</b> |
|-----------|-----------|----------------|------------------|------------------|
| 49        | 77        | -28            | 0                | 1                |
| 34        | 77        | -43            | 0                | 2                |
| 30        | 77        | -47            | 0                | 3                |
| 28        | 77        | -49            | 0                | 4                |
| 41        | 77        | -36            | 0                | 5                |
| 34        | 49        | -15            | 0                | 6                |
| 30        | 49        | -19            | 0                | 7                |
| 28        | 49        | -21            | 0                | 8                |
| 41        | 49        | -8             | 0                | 9                |
| 30        | 34        | -4             | 0                | 10               |
| 28        | 34        | -6             | 0                | 11               |
| 41        | 34        | 7              | 1                | 11               |
| 28        | 30        | -2             | 1                | 12               |
| 41        | 30        | 11             | 2                | 12               |
| 41        | 28        | 13             | 3                | 12               |

S Statistic = 3 - 12 = -9

Comparing at 95% confidence level (downward trend)

Probability of obtaining  $S \geq 9$  is 0.068

$S > 0$  or  $0.068 > 0.05$  indicating no evidence of a downward trend

## Skewness Coefficient

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

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### Background Locations

| Location | Obs. | Mean | Std. Dev. | Skewness |
|----------|------|------|-----------|----------|
| MW-17-06 | 1    | 12   | Div 0     | Div 0    |
| MW-17-07 | 1    | 17   | Div 0     | Div 0    |

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### Compliance Locations

| Location  | Obs. | Mean    | Std. Dev. | Skewness |
|-----------|------|---------|-----------|----------|
| MW-16-04S | 16   | 2.5     | 0         | Div 0    |
| MW-17-05  | 6    | 2.5     | 0         | Div 0    |
| MW-17-14  | 6    | 2.5     | 0         | Div 0    |
| MW-17-15  | 6    | 20.0333 | 8.6814    | 0.207663 |
| MW-17-18  | 6    | 2.5     | 0         | Div 0    |
| MW-17-20  | 6    | 2.5     | 0         | Div 0    |

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### All Locations

| Obs. | Mean    | Std. Dev. | Skewness |
|------|---------|-----------|----------|
| 48   | 5.19167 | 6.80125   | 2.52974  |

## Skewness Coefficient

Parameter: Lithium

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data

Skewness < -1 indicates negatively skewed data

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### Background Locations

| Location | Obs. | Mean | Std. Dev. | Skewness |
|----------|------|------|-----------|----------|
| MW-17-06 | 1    | 19   | Div 0     | Div 0    |
| MW-17-07 | 1    | 25   | Div 0     | Div 0    |

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### Compliance Locations

| Location  | Obs. | Mean    | Std. Dev. | Skewness   |
|-----------|------|---------|-----------|------------|
| MW-16-04S | 16   | 25.25   | 6.82642   | 0.810689   |
| MW-17-05  | 6    | 17.8667 | 12.5963   | 1.61448    |
| MW-17-14  | 6    | 19      | 14.2548   | 1.04334    |
| MW-17-15  | 6    | 43.1667 | 18.2802   | 1.16116    |
| MW-17-18  | 6    | 19.5    | 1.64317   | 0          |
| MW-17-20  | 6    | 29.6667 | 3.14113   | -0.0879712 |

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### All Locations

| Obs. | Mean    | Std. Dev. | Skewness |
|------|---------|-----------|----------|
| 48   | 25.4833 | 12.2747   | 1.66618  |

## Skewness Coefficient

Parameter: Lithium

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

---

### Background Locations

| Location | Obs. | Mean    | Std. Dev. | Skewness |
|----------|------|---------|-----------|----------|
| MW-17-06 | 1    | 2.94444 | Div 0     | Div 0    |
| MW-17-07 | 1    | 3.21888 | Div 0     | Div 0    |

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### Compliance Locations

| Location  | Obs. | Mean    | Std. Dev. | Skewness  |
|-----------|------|---------|-----------|-----------|
| MW-16-04S | 16   | 3.19691 | 0.257065  | 0.418022  |
| MW-17-05  | 6    | 2.73592 | 0.544157  | 1.21858   |
| MW-17-14  | 6    | 2.7005  | 0.80363   | -0.345181 |
| MW-17-15  | 6    | 3.70149 | 0.375808  | 0.780485  |
| MW-17-18  | 6    | 2.96743 | 0.0847978 | -0.18263  |
| MW-17-20  | 6    | 3.38528 | 0.107202  | -0.254298 |

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### All Locations

| Obs. | Mean    | Std. Dev. | Skewness  |
|------|---------|-----------|-----------|
| 48   | 3.13037 | 0.487333  | -0.698932 |

## Shapiro-Wilks Test of Normality

Parameter: Lithium

Location: MW-17-05

### Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

K = 3 for 6 measurements

| <b>i</b> | <b>x(i)</b> | <b>x(n-i+1)</b> | <b>x(n-1+1)-x(i)</b> | <b>a(n-i+1)</b> | <b>b(i)</b> |
|----------|-------------|-----------------|----------------------|-----------------|-------------|
| 1        | 9.2         | 43              | 33.8                 | 0.6431          | 21.7368     |
| 2        | 11          | 17              | 6                    | 0.2806          | 1.6836      |
| 3        | 13          | 14              | 1                    | 0.0875          | 0.0875      |
| 4        | 14          | 13              | -1                   |                 |             |
| 5        | 17          | 11              | -6                   |                 |             |
| 6        | 43          | 9.2             | -33.8                |                 |             |

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Sum of b values = 23.5079

Sample Standard Deviation = 12.5963

W Statistic = 0.69658

**5% Critical value of 0.788 exceeds 0.69658**

**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.713 exceeds 0.69658**

**Evidence of non-normality at 99% level of significance**

## Shapiro-Wilks Test of Normality

Parameter: Lithium

Location: MW-17-05

Normality Test of Parameter Concentrations

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

K = 3 for 6 measurements

| <b>i</b> | <b>x(i)</b> | <b>x(n-i+1)</b> | <b>x(n-1+1)-x(i)</b> | <b>a(n-i+1)</b> | <b>b(i)</b> |
|----------|-------------|-----------------|----------------------|-----------------|-------------|
| 1        | 2.2192      | 3.7612          | 1.542                | 0.6431          | 0.991658    |
| 2        | 2.3979      | 2.83321         | 0.435318             | 0.2806          | 0.12215     |
| 3        | 2.56495     | 2.63906         | 0.074108             | 0.0875          | 0.00648445  |
| 4        | 2.63906     | 2.56495         | -0.074108            |                 |             |
| 5        | 2.83321     | 2.3979          | -0.435318            |                 |             |
| 6        | 3.7612      | 2.2192          | -1.542               |                 |             |

---

Sum of b values = 1.12029

Sample Standard Deviation = 0.544157

W Statistic = 0.847704

5% Critical value of 0.788 is less than 0.847704

Data is normally distributed at 95% level of significance

1% Critical value of 0.713 is less than 0.847704

Data is normally distributed at 99% level of significance

## Skewness Coefficient

Parameter: Lithium

Original Data (Not Transformed)

Aitchison's Adjustment

Skewness > 1 indicates positively skewed data

Skewness < -1 indicates negatively skewed data

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### Background Locations

| Location | Obs. | Mean | Std. Dev. | Skewness |
|----------|------|------|-----------|----------|
| MW-17-06 | 1    | 19   | Div 0     | Div 0    |
| MW-17-07 | 1    | 12.5 | Div 0     | Div 0    |

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### Compliance Locations

| Location  | Obs. | Mean    | Std. Dev. | Skewness   |
|-----------|------|---------|-----------|------------|
| MW-16-04S | 16   | 25.25   | 6.82642   | 0.810689   |
| MW-17-05  | 6    | 17.8667 | 12.5963   | 1.61448    |
| MW-17-14  | 6    | 18.3333 | 15.1614   | 1.11076    |
| MW-17-15  | 6    | 43.1667 | 18.2802   | 1.16116    |
| MW-17-18  | 6    | 19.5    | 1.64317   | 0          |
| MW-17-20  | 6    | 29.6667 | 3.14113   | -0.0879712 |

---

### All Locations

| Obs. | Mean | Std. Dev. | Skewness |
|------|------|-----------|----------|
| 48   | 25.4 | 12.4362   | 1.67246  |



## Skewness Coefficient

Parameter: Lithium

Natural Logarithm Transformation

Aitchison's Adjustment

Skewness > 1 indicates positively skewed data  
Skewness < -1 indicates negatively skewed data

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### Background Locations

| Location | Obs. | Mean    | Std. Dev. | Skewness |
|----------|------|---------|-----------|----------|
| MW-17-06 | 1    | 2.94444 | Div 0     | Div 0    |
| MW-17-07 | 1    | 1.60944 | Div 0     | Div 0    |

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### Compliance Locations

| Location  | Obs. | Mean    | Std. Dev. | Skewness  |
|-----------|------|---------|-----------|-----------|
| MW-16-04S | 16   | 3.19691 | 0.257065  | 0.418022  |
| MW-17-05  | 6    | 2.73592 | 0.544157  | 1.21858   |
| MW-17-14  | 6    | 2.46946 | 1.30187   | 0.268687  |
| MW-17-15  | 6    | 3.70149 | 0.375808  | 0.780485  |
| MW-17-18  | 6    | 2.96743 | 0.0847978 | -0.18263  |
| MW-17-20  | 6    | 3.38528 | 0.107202  | -0.254298 |

---

### All Locations

| Obs. | Mean    | Std. Dev. | Skewness |
|------|---------|-----------|----------|
| 48   | 3.10149 | 0.616779  | 0.10822  |

# Confidence Interval

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

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## Background Locations

### Location MW-17-06

Mean 12  
Std Dev 0  
Degrees of Freedom 0  
Comparison Level 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval | Mid-Point | Significant |
|------------|---------|----------|-----------|-------------|
| 99%        | 31.821  | [12, 12] | 12        | FALSE       |
| 95%        | 2.91999 | [12, 12] | 12        | FALSE       |

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### Location MW-17-07

Mean 17  
Std Dev 0  
Degrees of Freedom 0  
Comparison Level 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval | Mid-Point | Significant |
|------------|---------|----------|-----------|-------------|
| 99%        | 31.821  | [17, 17] | 17        | FALSE       |
| 95%        | 2.91999 | [17, 17] | 17        | FALSE       |

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## Compliance Locations

### Location MW-16-04S

Mean 2.5  
Std Dev 0  
Degrees of Freedom 15  
Comparison Level 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval   | Mid-Point | Significant |
|------------|---------|------------|-----------|-------------|
| 99%        | 2.60248 | [2.5, 2.5] | 2.5       | FALSE       |
| 95%        | 1.75305 | [2.5, 2.5] | 2.5       | FALSE       |

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### Location MW-17-05

Mean 2.5  
Std Dev 0  
Degrees of Freedom 5  
Comparison Level 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval   | Mid-Point | Significant |
|------------|---------|------------|-----------|-------------|
| 99%        | 3.36493 | [2.5, 2.5] | 2.5       | FALSE       |
| 95%        | 2.01505 | [2.5, 2.5] | 2.5       | FALSE       |

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### Location MW-17-14

Mean 2.5  
Std Dev 0  
Degrees of Freedom 5  
Comparison Level 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval   | Mid-Point | Significant |
|------------|---------|------------|-----------|-------------|
| 99%        | 3.36493 | [2.5, 2.5] | 2.5       | FALSE       |
| 95%        | 2.01505 | [2.5, 2.5] | 2.5       | FALSE       |

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**Location** **MW-17-15**

Mean 20.0333  
Std Dev 8.6814  
Degrees of Freedom 5

**Comparison Level** 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [8.10746, 31.9592] | 20.0333   | FALSE       |
| 95%        | 2.01505 | [12.8917, 27.175]  | 20.0333   | FALSE       |

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**Location** **MW-17-18**

Mean 2.5  
Std Dev 0  
Degrees of Freedom 5

**Comparison Level** 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval   | Mid-Point | Significant |
|------------|---------|------------|-----------|-------------|
| 99%        | 3.36493 | [2.5, 2.5] | 2.5       | FALSE       |
| 95%        | 2.01505 | [2.5, 2.5] | 2.5       | FALSE       |

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**Location** **MW-17-20**

Mean 2.5  
Std Dev 0  
Degrees of Freedom 5

**Comparison Level** 32  
Untransformed Comp. Level 32

| Confidence | t-Stat  | Interval   | Mid-Point | Significant |
|------------|---------|------------|-----------|-------------|
| 99%        | 3.36493 | [2.5, 2.5] | 2.5       | FALSE       |
| 95%        | 2.01505 | [2.5, 2.5] | 2.5       | FALSE       |

---

# Confidence Interval

Parameter: Lithium

Natural Logarithm Transformation

Non-Detects Replaced with 1/2 DL

---

## Background Locations

### Location MW-17-06

Mean 2.94444  
Std Dev 0  
Degrees of Freedom 0

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 31.821  | [2.94444, 2.94444] | 2.94444   | FALSE       |
| 95%        | 2.91999 | [2.94444, 2.94444] | 2.94444   | FALSE       |

### Location MW-17-07

Mean 3.21888  
Std Dev 0  
Degrees of Freedom 0

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 31.821  | [3.21888, 3.21888] | 3.21888   | FALSE       |
| 95%        | 2.91999 | [3.21888, 3.21888] | 3.21888   | FALSE       |

---

## Compliance Locations

### Location MW-16-04S

Mean 3.19691  
Std Dev 0.257065  
Degrees of Freedom 15

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.60248 | [3.02966, 3.36416] | 3.19691   | FALSE       |
| 95%        | 1.75305 | [3.08425, 3.30957] | 3.19691   | FALSE       |

### Location MW-17-05

Mean 2.73592  
Std Dev 0.544157  
Degrees of Freedom 5

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [1.9884, 3.48344]  | 2.73592   | FALSE       |
| 95%        | 2.01505 | [2.28827, 3.18357] | 2.73592   | FALSE       |

### Location MW-17-14

Mean 2.7005  
Std Dev 0.80363  
Degrees of Freedom 5

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [1.59654, 3.80447] | 2.7005    | FALSE       |
| 95%        | 2.01505 | [2.03941, 3.3616]  | 2.7005    | FALSE       |

---

**Location** **MW-17-15**

Mean 3.70149  
Std Dev 0.375808  
Degrees of Freedom 5  
**Comparison Level 3.68888**  
Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [3.18524, 4.21775] | 3.70149   | FALSE       |
| 95%        | 2.01505 | [3.39234, 4.01065] | 3.70149   | FALSE       |

---

**Location** **MW-17-18**

Mean 2.96743  
Std Dev 0.0847978  
Degrees of Freedom 5  
**Comparison Level 3.68888**  
Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [2.85094, 3.08392] | 2.96743   | FALSE       |
| 95%        | 2.01505 | [2.89767, 3.03719] | 2.96743   | FALSE       |

---

**Location** **MW-17-20**

Mean 3.38528  
Std Dev 0.107202  
Degrees of Freedom 5  
**Comparison Level 3.68888**  
Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [3.23801, 3.53254] | 3.38528   | FALSE       |
| 95%        | 2.01505 | [3.29709, 3.47347] | 3.38528   | FALSE       |

---

# Confidence Interval

Parameter: Lithium

Natural Logarithm Transformation

Aitchison's Adjustment

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## Background Locations

### Location MW-17-06

Mean 2.94444  
Std Dev 0  
Degrees of Freedom 0

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 31.821  | [2.94444, 2.94444] | 2.94444   | FALSE       |
| 95%        | 2.91999 | [2.94444, 2.94444] | 2.94444   | FALSE       |

### Location MW-17-07

Mean 1.60944  
Std Dev 0  
Degrees of Freedom 0

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 31.821  | [1.60944, 1.60944] | 1.60944   | FALSE       |
| 95%        | 2.91999 | [1.60944, 1.60944] | 1.60944   | FALSE       |

---

## Compliance Locations

### Location MW-16-04S

Mean 3.19691  
Std Dev 0.257065  
Degrees of Freedom 15

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 2.60248 | [3.02966, 3.36416] | 3.19691   | FALSE       |
| 95%        | 1.75305 | [3.08425, 3.30957] | 3.19691   | FALSE       |

### Location MW-17-05

Mean 2.73592  
Std Dev 0.544157  
Degrees of Freedom 5

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [1.9884, 3.48344]  | 2.73592   | FALSE       |
| 95%        | 2.01505 | [2.28827, 3.18357] | 2.73592   | FALSE       |

### Location MW-17-14

Mean 2.46946  
Std Dev 1.30187  
Degrees of Freedom 5

Comparison Level 3.68888

Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval            | Mid-Point | Significant |
|------------|---------|---------------------|-----------|-------------|
| 99%        | 3.36493 | [0.681036, 4.25787] | 2.46946   | FALSE       |
| 95%        | 2.01505 | [1.39848, 3.54043]  | 2.46946   | FALSE       |

---

**Location** **MW-17-15**

Mean 3.70149  
Std Dev 0.375808  
Degrees of Freedom 5  
**Comparison Level** **3.68888**  
Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [3.18524, 4.21775] | 3.70149   | FALSE       |
| 95%        | 2.01505 | [3.39234, 4.01065] | 3.70149   | FALSE       |

---

**Location** **MW-17-18**

Mean 2.96743  
Std Dev 0.0847978  
Degrees of Freedom 5  
**Comparison Level** **3.68888**  
Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [2.85094, 3.08392] | 2.96743   | FALSE       |
| 95%        | 2.01505 | [2.89767, 3.03719] | 2.96743   | FALSE       |

---

**Location** **MW-17-20**

Mean 3.38528  
Std Dev 0.107202  
Degrees of Freedom 5  
**Comparison Level** **3.68888**  
Untransformed Comp. Level 40

| Confidence | t-Stat  | Interval           | Mid-Point | Significant |
|------------|---------|--------------------|-----------|-------------|
| 99%        | 3.36493 | [3.23801, 3.53254] | 3.38528   | FALSE       |
| 95%        | 2.01505 | [3.29709, 3.47347] | 3.38528   | FALSE       |

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# Appendix E

## Groundwater Treatment System Pilot-Scale Test: Implementation and Performance Report



## Technical Memorandum

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**Date:** October 11, 2023

**To:** Chris Scieszka, DTE

**From:** Vince Buening, Dave McKenzie, P.E., Scott Pawlukiewicz, TRC; and Steve Markesic, Redox Tech

**Project No.:** 495769.0000.0000

**Subject:** Groundwater Treatment Pilot-Scale Test: Implementation and Performance Report  
DTE Electric River Rouge Electric Generating Power Plant, River Rouge, Michigan

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This technical memorandum outlines the pilot scale testing activities that have been completed to date as part of TRC's evaluation of alternative *in situ* groundwater treatment technologies to reduce arsenic concentrations in on-site groundwater at the River Rouge Power Plant (RRPP) located in River Rouge, Michigan.

The purpose of this pilot scale test, described herein, was to confirm that the findings from the bench scale testing, namely the in place immobilization of arsenic by injection of specific reagents, can be replicated in the field and subsequently scaled up for full implementation as a final groundwater remedy for the site as an alternative to continued operation of the interim groundwater extraction system.

### Background

The RRPP is a former coal-fired power plant owned and operated by DTE Electric located adjacent to the River Rouge Short Cut Canal (north) and the Detroit River (east). The RRPP ceased operating as a coal-fired plant in May 2020. The former coal combustion residual (CCR) bottom ash basin (BAB), historically used as a CCR settling basin, was closed by CCR removal from July to October 2020. Additionally, CCR residuals around the outside perimeter of the former BAB were excavated and replaced with clean backfill soils. The former BAB is currently operated as a non-CCR process water and stormwater retention pond (PWP).

A groundwater extraction system began operation in March 2018 and has operated consistently since then to maintain hydraulic control around the BAB. As a result of the groundwater extraction system operation, arsenic concentrations in groundwater at most monitoring wells around the PWP have decreased since 2018. In accordance with 40 CFR 257.96, an Assessment of Corrective Measures (ACM) was prepared in April 2019 and updated in July 2022 in response to the detected arsenic releases from the BAB. The ACM identified BAB closure by CCR removal as the most viable approach, and as indicted above, these activities were completed in calendar year 2020. The groundwater extraction system is deemed an interim measure, with the completion of BAB closure combined with the operation of the extraction system to be further assessed following the closure activities. In 2022, TRC conducted a bench-scale treatability study using site groundwater and soil to evaluate two *in situ*

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treatment options for removing arsenic from groundwater at RRPP. These included: (1) zero-valent iron (ZVI), and (2) a solution of guar gum and ferrous sulfate. Results from this study were presented in a report “Arsenic in Groundwater Treatability Bench Test Results” dated April 2022 and indicated that ZVI was effective at removing both arsenate and arsenite from site groundwater. In addition, application of ferrous sulfate and guar gum was successful at stimulating anaerobic bacteria and enhanced the reduction of arsenic from groundwater through biological processes.

### Pilot Test Objectives

As described in the April 2022 Arsenic in Groundwater Treatability Bench Test Results report, bench testing using site soil and groundwater indicate that ZVI can effectively remove both arsenate and arsenite from the site groundwater. Although the microbial reduction of arsenic, stimulated with the use of guar gum/ferrous sulfate, did not achieve groundwater protection standards within the test period (38 days), the testing did confirm that anaerobic bacteria were stimulated and contributed to enhanced reduction of arsenic from groundwater. The addition of guar gum was proposed for pilot testing as an aid to keep the ZVI in suspension during injections and to provide a food source (i.e., carbon) for anaerobic bacteria, helping to establish reducing conditions in situ. Under anaerobic conditions, sulfate reducing bacteria will convert ferrous sulfate to ferrous sulfide, which will contribute to the adsorption and coprecipitation of arsenic. If successful, the pilot-scale test application may be implemented full-scale as a final groundwater remedy for this site. Specific objectives of the pilot test include:

- **Evaluate injection mechanics/injectate distribution.** The key to achieving successful arsenic removal is the ability to sufficiently distribute the ZVI/guar gum/ferrous sulfate slurry throughout the target groundwater treatment zone. Although results from the bench scale testing do indicate that ZVI can effectively remove both arsenate and arsenite from groundwater, pilot scale testing will confirm that the amendment can be successfully distributed throughout the soil matrix; and,
- **Evaluate post-injection changes in groundwater chemistry** via performance monitoring over approximately 6 months after slurry injection to monitor for reductions in arsenic concentrations and confirm that the injected reagents cause no detrimental effects on water quality at the site.

### Pilot Test Implementation

The target pilot test area is shown in Figures 1 and 2 of **Attachment 1** and consisted of an approximately 25-ft by 25-ft area centered on monitoring well MW-16-01, where elevated levels of arsenic have persisted during operation of the groundwater extraction system. Pre-injection, injection, and groundwater assessment activities were completed from September 15, 2022 to May 9, 2023 and are described in detail herein. Groundwater sampling results prior to and during the pilot test at select monitoring wells are shown on Figure 1 (**Attachment 1**) and groundwater sample results and collected field parameters during groundwater assessment activities are included as **Attachment 2**, soil boring/well logs are included as **Attachment 3**, laboratory reports are included as **Attachment 4**, Injection Report/Field Logs are included as **Attachment 5**, and a photographic log of field activities is included as **Attachment 6**.

### Pre-Injection Work- Installation and Pre-Injection Sampling of Temporary Monitoring Wells

On September 15, 2022, the existing extraction system was shut down to allow the groundwater conditions to stabilize prior to implementing the pilot scale test and replicate future static geochemistry conditions.

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On October 6, 2022, Job Site Services (JSS) installed four (4) temporary 1-inch diameter monitoring wells within the test area, with screens positioned across the target zone (approximately 15 to 25 feet below ground surface [bgs]). Utilities were cleared and marked by Ground Penetrating Radar Systems, LLC (GPRS) prior to drilling and groundwater elevations were recorded from all surrounding monitoring wells to confirm the groundwater flow direction was towards the Rouge River through the pilot test area. At each temporary well location, continuous soil samples were collected using a Geoprobe 7822 Series drill rig and a 3.25-inch dual tube sampling system. Samples were collected from near surface to depths of 25 to 27 feet bgs (the intention was to ensure the underlying clay interface was identified). Each soil core was logged using the unified soil classification system (USCS) and the borehole converted to a 1-inch diameter stickup PVC temporary well with the bottom of the wells screen positioned at the clay layer. Dedicated tubing was installed within each well and marked so that the bottom of the tubing was positioned approximately 5 feet above the bottom of the well screen to ensure samples from each event were collected from the same depth.

One temporary well (TW-01) was positioned upgradient of the pilot test area immediately adjacent to the sheet piling to monitor background conditions throughout the pilot scale test. Two temporary wells (TW-03/3R, TW-04/04R) were positioned within the targeted pilot test area and were used, in addition to MW-16-01, to assess the performance of the pilot scale test. An additional temporary well (TW-02) was installed as far downgradient as possible. Due to the limited space and the presence of a fence, this well was positioned approximately 6.25 ft downgradient of MW-16-01 and not outside of the pilot test area as originally proposed. It was anticipated that groundwater sampling results from this well will also be used to assess the effectiveness of the pilot test injections.

Well locations and the pilot test area layout is provided in Figure 2 (**Attachment 1**). Soil boring logs and well completion logs are provided in **Attachment 3**.

Prior to the injection activities, periodic sampling of all temporary wells and selected monitoring wells was conducted to establish baseline conditions, and to ensure the shallow groundwater conditions had stabilized subsequent to the extraction system being turned off. Sampling events occurred on October 13 and 26, and November 10, 2022, with samples submitted under chain-of-custody to Merit Labs. The potable water source was also sampled and analyzed for Appendix IV metals during the baseline testing to ensure the water source to be used for the pilot testing injections did not contain any undesirable compounds.

Groundwater samples were collected using low-flow groundwater sampling methodology in accordance with procedures outlined in the CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company River Rouge Power Plant Bottom Ash Basin (the QAPP; TRC, July 2016; revised August 2017). One blind duplicate sample was collected during each event. Field parameters including pH, dissolved oxygen, oxidation reduction potential (ORP), specific conductivity, temperature, and turbidity were measured as part of sample collection.

During the pre-injection sampling events, groundwater elevation data was also collected to document static water level conditions which appeared to stabilize relatively quickly after the extraction system had been shut down. The groundwater sampling results as well as field parameters and groundwater elevation data are presented in Tables 1 and 2 (**Attachment 2**); also, arsenic concentrations in groundwater are shown on Figure 1 (**Attachment 1**). Laboratory Reports are provided in **Attachment 4**. Observations during the pre-injection sampling activities included:

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- Arsenic concentrations at the temporary and permanent wells were reported stable throughout the sampling events, but varied over two orders of magnitude spatially within the study area;
- Groundwater geochemical conditions remained reducing with low ORP and dissolved oxygen values reported consistently; and,
- The potable water source did not report any exceedances of Appendix IV metals.

### Injection Activities

The pilot scale injection activities were completed on November 21, 2022 by Redox Tech, LLC (Redox Tech) under the direction of TRC. Prior to beginning the injection work, Redox Tech removed temporary monitoring wells TW-03 and TW-04 and sealed the borings with bentonite to prevent and minimize daylighting during the injection activities. Injections were conducted at four separate locations (IP-01, IP-02, IP-03<sup>1</sup>, and IP-04) using direct push drilling techniques with a Geoprobe 6610 DPT rig. Due to the presence of electrical conduit(s) associated with the groundwater extraction system, injection points IP-01 and IP-02 were hand augured to a depth of 4 feet to position these points as close to the utility markings as possible. Drill rods were advanced to the bottom of the target zone using a knockout tip. Injections were conducted from the bottom of the borehole upwards at one-foot increments to maximize the vertical distribution of the slurry at each location. The locations of pilot scale injection points are depicted on Figure 2 (**Attachment 1**).

Redox Tech prepared batches of ZVI slurry containing water, ZVI, ferrous sulfate, and guar. These batches were prepared in a Chem-Grout injection plant consisting of two (2) 55-gallon hoppers and a 3-inch piston pump capable of injecting slurries. The 55-gallon hoppers are equipped with pneumatically powered agitators which were used to mix the slurry and keep the solids suspended during injection. Each injection point location received approximately 175 gallons of slurry containing approximately 387.5 pounds ZVI, 100 pounds of ferrous sulfate, and 9 pounds of guar gum. A total of 1,550 pounds of ZVI, 400 pounds of ferrous sulfate, and 36 pounds of guar in 700 gallons of solution were injected within the pilot test area.

During injections, Redox Tech recorded the injection pressures, volumes, pumping rates, start/stop times, and slurry mixture. These logs are attached in Redox Tech's report provided in **Attachment 5**. Throughout the injections, pressures remained below 50 pounds per square inch (psi) which is the minimum pressure that the gauge on the ChemGrout unit can record.

On November 22, 2022, four (4) continuous soil cores were collected within the pilot test area from approximately 5 feet to 25 bgs to visually document the presence of ZVI. Each core was logged and areas with ZVI presence were documented. The natural soil color was very similar to the ZVI, making visual identification difficult, but use of a magnet allowed the field team to test for ZVI presence using a magnetic separation test. ZVI was found present throughout the test area as both seams and intermixed within the sand matrix. **Attachment 6** provides photographs showing various results from the magnetic separation tests.

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<sup>1</sup> During injection at IP-03 at a depth of 23.5 feet bgs, daylighting was observed near the EW-5 vault and was likely a result of a poorly sealed borehole or other subsurface feature. As a result, the injection point was shifted several feet to the east (IP-03B) and injections proceeded through the remainder of the soil column.

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Soil confirmation borings CB-02 and CB-03 were positioned immediately adjacent to temporary well locations TW-03 and TW-04, respectively. These borings were converted to 1-inch diameter temporary wells (TW-03R and TW-04R) and were used to assess the effectiveness of the pilot test during post injection sampling events. The remaining two borings (CB-01, CB-04) were sealed with bentonite. Soil boring logs and temporary well completion reports are provided in **Attachment 3**.

### Groundwater Assessment Activities

Periodic sampling of all temporary wells and selected monitoring wells was conducted periodically throughout the 6-month period (Nov 2022 to May 2023) following the injection activities to assess the performance of the injection chemistry for removing arsenic from groundwater and to determine whether the overall mechanics of the injection plan, namely the horizontal and vertical spacings of injections points, are satisfactory for achieving the groundwater quality objectives across the targeted remediation area. Groundwater sampling events occurred on December 1 and December 7, 2022, and on January 4, February 9-10, and May 8-9, 2023, with the collected samples being submitted to Merit Labs for all sample events. The pilot test groundwater monitoring well network included the following monitoring/temporary monitoring wells:

- MW-16-01 (target);
- PT-TW-02 (downgradient);
- PT-TW-01, PT-TW-03, and PT-TW-04 (upgradient/side gradient); and
- MW-17-14, MW-17-15, MW-17-16, and MW-17-17 as control wells to assess arsenic concentration rebound resulting from groundwater extraction system shutdown in areas that previously had some arsenic present).

Groundwater samples were collected using low-flow groundwater sampling methodology in accordance with procedures outlined in the CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company River Rouge Power Plant Bottom Ash Basin (the QAPP; TRC, July 2016; revised August 2017). One blind duplicate sample was collected during each groundwater sampling event. Field parameters including pH, dissolved oxygen, ORP, specific conductivity, temperature, and turbidity were measured as part of the groundwater sample collection.

During each sampling event, groundwater elevation data was also collected to document static water level conditions. Groundwater geochemical conditions remained reducing with low ORP and dissolved oxygen values reported consistently. The groundwater sampling results as well as field parameters and groundwater elevation data are presented in Tables 1 and 2 (**Attachment 2**); arsenic and lithium concentrations at select monitoring wells near the pilot test area are shown on Figure 1 (**Attachment 1**). Laboratory Reports are provided in **Attachment 4**.

### Pilot Test Results

As previously noted, an area encompassing MW-16-01 was targeted during this pilot test assessment where elevated and persistent arsenic concentrations have been observed. Pilot testing was completed by placing four injection points near this well and applying a total of 700 gallons of injectate containing 1,550 pounds of ZVI, 400 pounds of ferrous sulfate, and 36 pounds of guar gum. Post-injection, soil borings were advanced near monitoring well MW-16-01 and near the injection points to assess the injection mechanics including the effectiveness of the pilot test injection point spacing and injection depth intervals of these injection points to determine overall injectate distribution and to

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determine whether any modifications would be made if full-scale implementation is pursued. Additionally, groundwater samples were collected from select permanent monitoring wells and temporarily installed monitoring wells over the course of 6 months after the injection event to assess injectate performance, especially changes in groundwater chemistry and its ability to remove arsenic from groundwater. Key findings from the pilot study are outlined below:

### Injection Mechanics/Injectate Distribution

- The distribution of injectate appeared to be effectively directed within the area of the pilot study by the 4 injection points based on post-injection boring assessments and post-injection groundwater sampling results at MW-16-01 and the pilot test temporary wells; however, the temporary side-gradient pilot test area wells (TW-03 and TW-04) showed lesser reductions of arsenic indicating that groundwater in these wells may be slightly impacted by groundwater outside of the zone of influence of the injection wells in spite of good distribution of ZVI and ferrous sulfate based on the increase of iron and sulfate at these wells following the injection event.
- Slightly tighter injection well spacing is preferred to improve the distribution of injectate and to minimize the potential for daylighting of injectate through utility corridors at the site. With this approach, less volume would be injected at each injection point for full scale implementation. However, the mass of ZVI and ferrous sulfate in relation to the mass of soil would be consistent with that conducted during the pilot scale testing.

### Post-Injection Groundwater Chemistry Assessment

- Arsenic concentrations in groundwater were effectively reduced within the pilot study area (based on samples collected from MW-16-01) by the injection of ZVI and ferrous sulfate. Monitoring well MW-16-01 was reduced by 96% (from 0.110 mg/L pre-test to 0.004 mg/L) after approximately 6 months. A similar trend is shown with barium, as concentrations of barium have dropped by 50-80% in the pilot study area wells.
- Pilot testing had limited effect on other Appendix III or IV parameters. No apparent trends related to pilot testing were observed in lithium concentrations at MW-16-01 or any of the temporary monitoring locations.
- The impact of ZVI injections and associated amendments has effectively changed the pilot test study area groundwater geochemistry based on a more negative shift in the measured in-situ ORP at all pilot study area wells for the entirety of the pilot study. Remaining mobile arsenic in groundwater within the pilot tested area is anticipated to become adsorbed (immobilized) thereby removing it from the groundwater and preventing movement outside of the pilot test injection area.
- As expected, following the injection of ZVI, iron concentrations in groundwater increased significantly in the pilot test area. Because of the reduced groundwater conditions, most is dissolved (ferrous) iron.
- Similar to iron, sulfate, as a result of injection of ferrous sulfate, spiked in the pilot test area wells following the injection event, and over the 6-month pilot test monitoring period, the sulfate concentrations have decreased indicating that sulfate reduction is occurring, but remain elevated above pre-injection sulfate concentrations [which for most pilot test area wells was below the laboratory detection limit (10 mg/L)].
- Dissolved oxygen concentrations dropped to near 0 mg/L for most of the pilot test area wells immediately after the injection event. Dissolved oxygen concentrations increased slightly in the January, February, and May sampling events to about 1 mg/L at various monitoring locations and is most likely due to precipitation infiltration. These values are still considered to be low

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concentrations and are expected to get consumed by the ZVI over time and will assist with further corrosion of the ZVI.

- The observed decreases in the specific conductivity at various monitoring locations is expected as anticipated to decrease as sulfate continues to get reduced.
- Over the course of the 6-month pilot test assessment period, redox conditions at the pilot test area wells have generally become more reduced over time. Specifically, at the targeted MW-16-01, ORP has decreased to -247,5 mV from a pre-injection condition of -148.8 mV and has shown a consistent decline each sampling event. Additionally, arsenic concentrations continue to decrease at this location during each post-injection sampling event. Both of these trends suggest that the injected slurry has remaining potency that will continue to be assessed during full-scale implementation.

### Recommendations for Next Steps/Full-Scale Implementation

The pilot test results demonstrate that arsenic can be removed from groundwater via injection of ZVI supplemented with ferrous sulfate and guar gum injection amendments to create a reduced groundwater zone which facilitates the adsorption/sequestration of the dissolved arsenic from the groundwater therefore rendering it immobile and preventing its continued off-site migration potential. Recommendations based on the pilot study results for full-scale application are outlined below:

- Continue monitoring post-injection changes in groundwater chemistry at MW-16-01 to evaluate long-term performance of the injected slurry and longevity of this treatment strategy.
- Implement minor modifications to the pilot scale injection plan/spacing. Conceptually, injection point spacing will be decreased perpendicular to groundwater flow to 8 feet to provide improved overlap and distribution of the amendments and to eliminate/reduce some of the daylighting issues experienced during the pilot scale testing. The spacing between the injection rows in the direction of groundwater flow will be maintained at approximately 10 feet. Similar to the pilot test injection plan, all full-scale injection points would target the groundwater zone between 15 and 25 ft bgs.
- Complete full-scale injections utilizing a consistent delivery method and mixture during the pilot scale testing. The ZVI and ferrous sulfate will be mixed with potable water and guar to form a slurry. This volume of slurry will be equivalent to approximately 7-8 percent of the available pore space assuming a porosity of 30 percent and is consistent with the results from the pilot scale test.
- Complete full-scale injections covering the recommended target area(s) depicted on Figure 3 (**Attachment 1**). The proposed targeted area reflects where groundwater in the vicinity of the former BAB has historically and/or currently contained arsenic at concentrations above the groundwater protection standards (GWPS) for the site.
  - Based on the proposed full-scale injection point density, approximately 120 to 150 injection points may be proposed.
  - Based on an anticipated injectate application rate per point, full-scale implementation would be complete over a period of approximately 20 days.

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## Attachments

### Attachment 1 Figures

Figure 1: Pilot Test Area Location and Pre & Post Groundwater Analytical Results

Figure 2: Pilot Test Injection Area Layout

Figure 3: Recommended Full-Scale Injection Area Layout

### Attachment 2 Tables

Table 1: Summary of Pilot Test Analytical Results

Table 2: Summary of Pilot Test Field Data

### Attachment 3 Soil Boring and Well Logs

### Attachment 4 Laboratory Reports

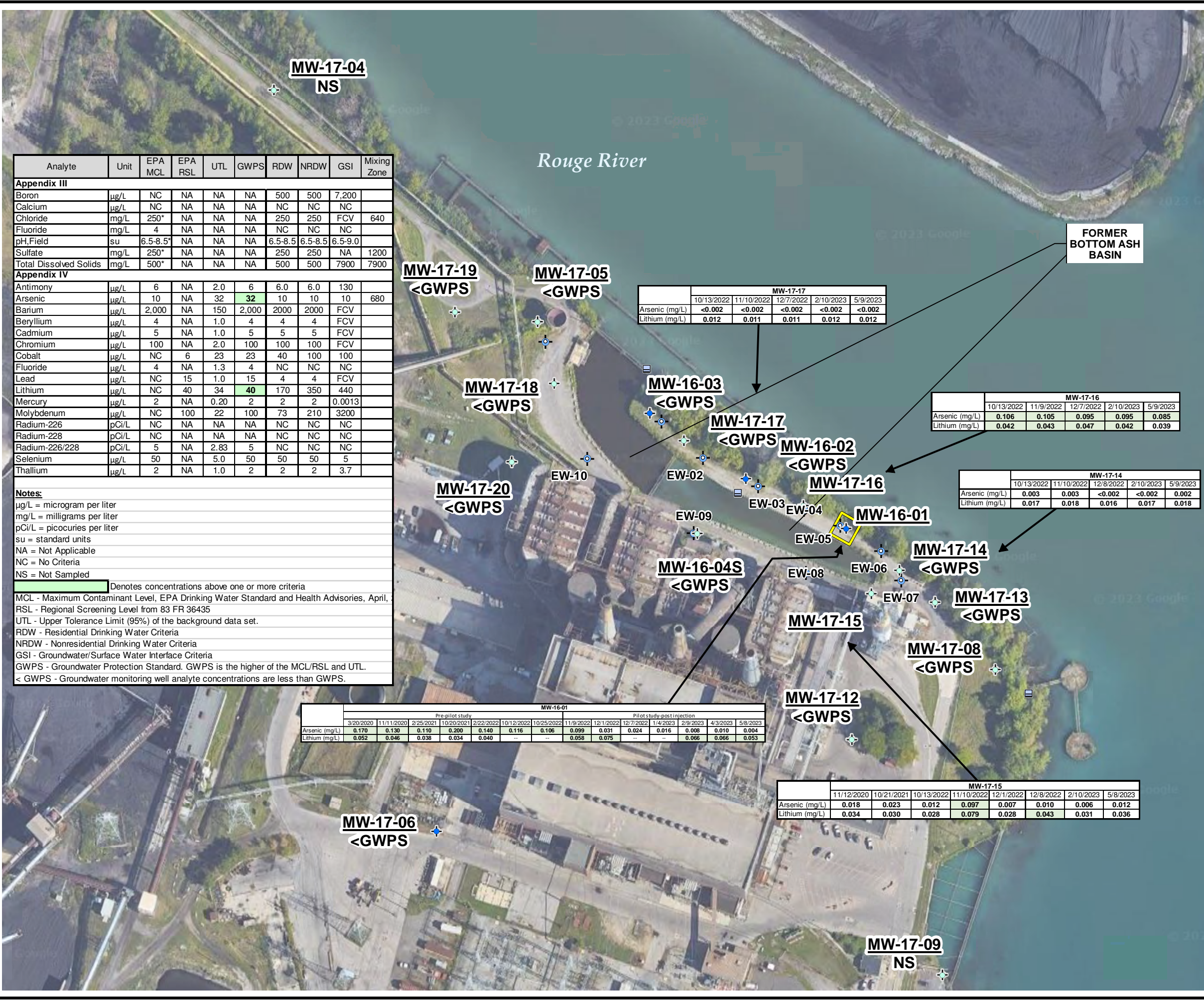
### Attachment 5 Redox Tech Injection Report and Logs

### Attachment 6 Pilot Test Implementation Photographic Log



# **Attachment 1**

## **Figures**



| Analyte                | Unit | EPA MCL  | EPA RSL | UTL | GWPS | RDW     | NRDW    | GS1     | Mixing Zone |
|------------------------|------|----------|---------|-----|------|---------|---------|---------|-------------|
| <b>Appendix III</b>    |      |          |         |     |      |         |         |         |             |
| Boron                  | µg/L | NC       | NA      | NA  | NA   | 500     | 500     | 7,200   |             |
| Calcium                | µg/L | NC       | NA      | NA  | NA   | NC      | NC      | NC      |             |
| Chloride               | mg/L | 250*     | NA      | NA  | NA   | 250     | 250     | FCV     | 640         |
| Fluoride               | mg/L | 4        | NA      | NA  | NA   | NC      | NC      | NC      |             |
| pH,Field               | su   | 6.5-8.5* | NA      | NA  | NA   | 6.5-8.5 | 6.5-8.5 | 6.5-9.0 |             |
| Sulfate                | mg/L | 250*     | NA      | NA  | NA   | 250     | 250     | NA      | 1200        |
| Total Dissolved Solids | mg/L | 500*     | NA      | NA  | NA   | 500     | 500     | 7900    | 7900        |

|                    |       |       |     |      |       |      |      |        |     |
|--------------------|-------|-------|-----|------|-------|------|------|--------|-----|
| <b>Appendix IV</b> |       |       |     |      |       |      |      |        |     |
| Antimony           | µg/L  | 6     | NA  | 2.0  | 6     | 6.0  | 6.0  | 130    |     |
| Arsenic            | µg/L  | 10    | NA  | 32   | 32    | 10   | 10   | 10     | 680 |
| Barium             | µg/L  | 2,000 | NA  | 150  | 2,000 | 2000 | 2000 | FCV    |     |
| Beryllium          | µg/L  | 4     | NA  | 1.0  | 4     | 4    | 4    | FCV    |     |
| Cadmium            | µg/L  | 5     | NA  | 1.0  | 5     | 5    | 5    | FCV    |     |
| Chromium           | µg/L  | 100   | NA  | 2.0  | 100   | 100  | 100  | FCV    |     |
| Cobalt             | µg/L  | NC    | 6   | 23   | 23    | 40   | 100  | 100    |     |
| Fluoride           | µg/L  | 4     | NA  | 1.3  | 4     | NC   | NC   | NC     |     |
| Lead               | µg/L  | NC    | 15  | 1.0  | 15    | 4    | 4    | FCV    |     |
| Lithium            | µg/L  | NC    | 40  | 34   | 40    | 170  | 350  | 440    |     |
| Mercury            | µg/L  | 2     | NA  | 0.20 | 2     | 2    | 2    | 0.0013 |     |
| Molybdenum         | µg/L  | NC    | 100 | 22   | 100   | 73   | 210  | 3200   |     |
| Radium-226         | pCi/L | NC    | NA  | NA   | NA    | NC   | NC   | NC     |     |
| Radium-228         | pCi/L | NC    | NA  | NA   | NA    | NC   | NC   | NC     |     |
| Radium-226/228     | pCi/L | 5     | NA  | 2.83 | 5     | NC   | NC   | NC     |     |
| Selenium           | µg/L  | 50    | NA  | 5.0  | 50    | 50   | 50   | 5      |     |
| Thallium           | µg/L  | 2     | NA  | 1.0  | 2     | 2    | 2    | 3.7    |     |

**Notes:**  
 µg/L = microgram per liter  
 mg/L = milligrams per liter  
 pCi/L = picocuries per liter  
 su = standard units  
 NA = Not Applicable  
 NC = No Criteria  
 NS = Not Sampled  
 [Green box] Denotes concentrations above one or more criteria  
 MCL - Maximum Contaminant Level, EPA Drinking Water Standard and Health Advisories, April, 1991  
 RSL - Regional Screening Level from 83 FR 36435  
 UTL - Upper Tolerance Limit (95%) of the background data set.  
 RDW - Residential Drinking Water Criteria  
 NRDW - Nonresidential Drinking Water Criteria  
 GS1 - Groundwater/Surface Water Interface Criteria  
 GWPS - Groundwater Protection Standard. GWPS is the higher of the MCL/RSL and UTL.  
 < GWPS - Groundwater monitoring well analyte concentrations are less than GWPS.

| Analyte        | Pre-pilot study |            |           |            |           |            | Pilot study post injection |           |           |           |          |          |          |          |
|----------------|-----------------|------------|-----------|------------|-----------|------------|----------------------------|-----------|-----------|-----------|----------|----------|----------|----------|
|                | 3/20/2020       | 11/11/2020 | 2/25/2021 | 10/20/2021 | 2/22/2022 | 10/12/2022 | 10/25/2022                 | 11/9/2022 | 12/1/2022 | 12/7/2022 | 1/4/2023 | 2/9/2023 | 4/3/2023 | 5/8/2023 |
| Arsenic (mg/L) | 0.170           | 0.130      | 0.110     | 0.200      | 0.140     | 0.116      | 0.106                      | 0.099     | 0.031     | 0.024     | 0.016    | 0.008    | 0.010    | 0.004    |
| Lithium (mg/L) | 0.052           | 0.046      | 0.038     | 0.034      | 0.040     | --         | --                         | 0.058     | 0.075     | --        | --       | 0.066    | 0.066    | 0.053    |

| Analyte        | 10/13/2022     | 11/10/2022 | 12/7/2022 | 2/10/2023 | 5/9/2023 |
|----------------|----------------|------------|-----------|-----------|----------|
|                | Arsenic (mg/L) | <0.002     | <0.002    | <0.002    | <0.002   |
| Lithium (mg/L) | 0.012          | 0.011      | 0.011     | 0.012     | 0.012    |

| Analyte        | 10/13/2022     | 11/9/2022 | 12/7/2022 | 2/10/2023 | 5/9/2023 |
|----------------|----------------|-----------|-----------|-----------|----------|
|                | Arsenic (mg/L) | 0.106     | 0.105     | 0.095     | 0.095    |
| Lithium (mg/L) | 0.042          | 0.043     | 0.047     | 0.042     | 0.039    |

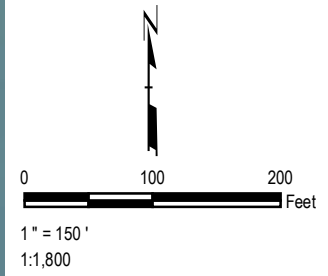
| Analyte        | 10/13/2022     | 11/10/2022 | 12/8/2022 | 2/10/2023 | 5/9/2023 |
|----------------|----------------|------------|-----------|-----------|----------|
|                | Arsenic (mg/L) | 0.003      | 0.003     | <0.002    | <0.002   |
| Lithium (mg/L) | 0.017          | 0.018      | 0.016     | 0.017     | 0.018    |

| Analyte        | 11/12/2020     | 10/21/2021 | 10/13/2022 | 11/10/2022 | 12/1/2022 | 12/8/2022 | 2/10/2023 | 5/8/2023 |
|----------------|----------------|------------|------------|------------|-----------|-----------|-----------|----------|
|                | Arsenic (mg/L) | 0.018      | 0.023      | 0.012      | 0.097     | 0.007     | 0.010     | 0.006    |
| Lithium (mg/L) | 0.034          | 0.030      | 0.028      | 0.079      | 0.028     | 0.043     | 0.031     | 0.036    |

**LEGEND**

- COMPLIANCE WELLS
- MONITORING POINT
- NATURE AND EXTENT WELLS
- EXTRACTION WELL
- PILOT SCALE TEST STUDY AREA

- NOTES**
- BASE MAP IMAGERY FROM GOOGLE, 08/2022.
  - WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN JUNE 2016 & JUNE 2017.



PROJECT: DTE ELECTRIC COMPANY  
 RIVER ROUGE POWER PLANT BOTTOM ASH BASIN  
 1 BELANGER PARK DRIVE  
 RIVER ROUGE, MICHIGAN

TITLE: PILOT TEST AREA LOCATION AND PRE & POST GROUNDWATER ANALYTICAL RESULTS

DRAWN BY: A. FOJTIK PROJ NO: 495769  
 CHECKED BY: S. MARKESIC  
 APPROVED BY: D. MCKENZIE  
 DATE: OCTOBER 2023

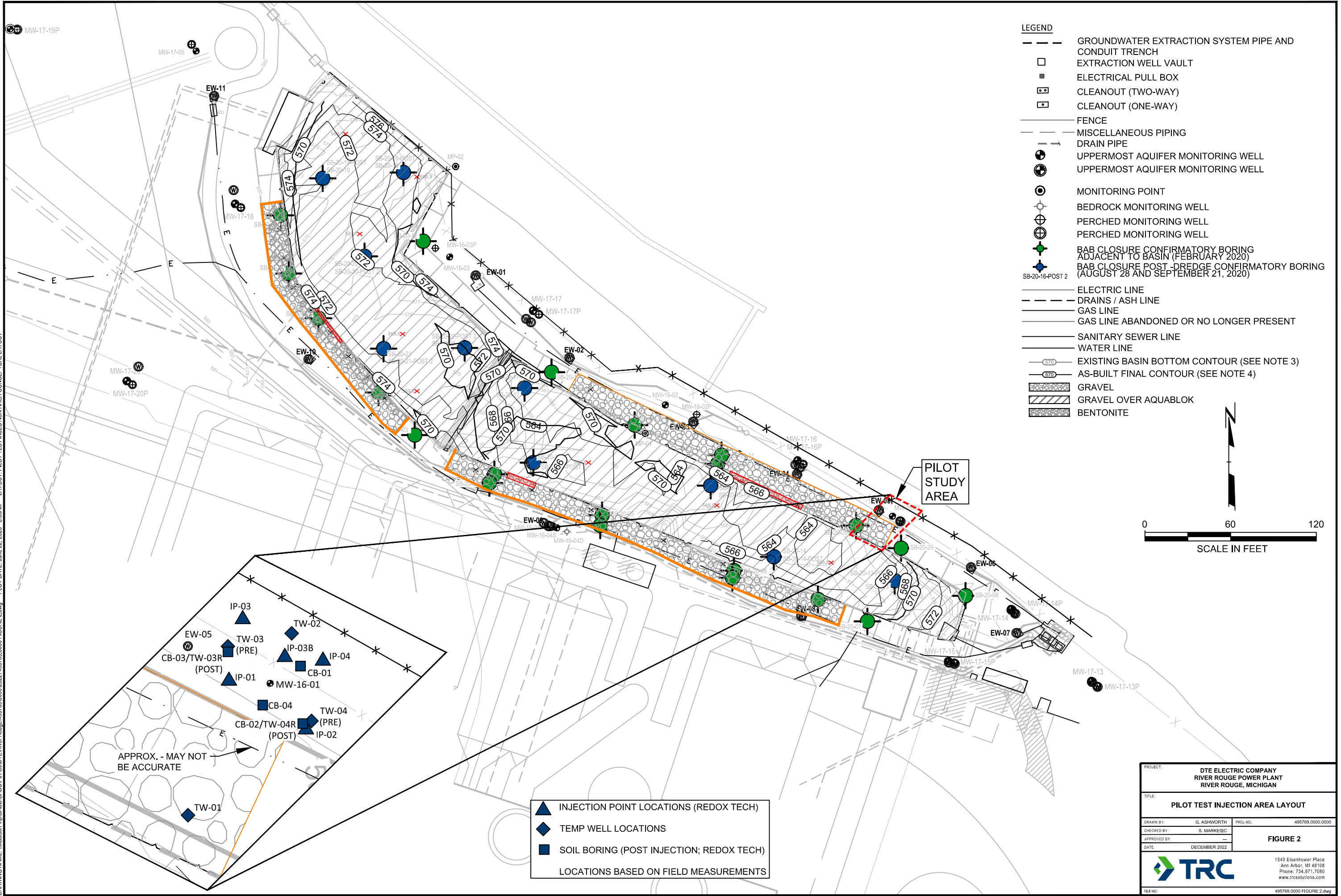
**FIGURE 1**

TRC  
 1540 Eisenhower Place  
 Ann Arbor, MI 48108-3284  
 Phone: 734.971.7080  
 www.trccompanies.com

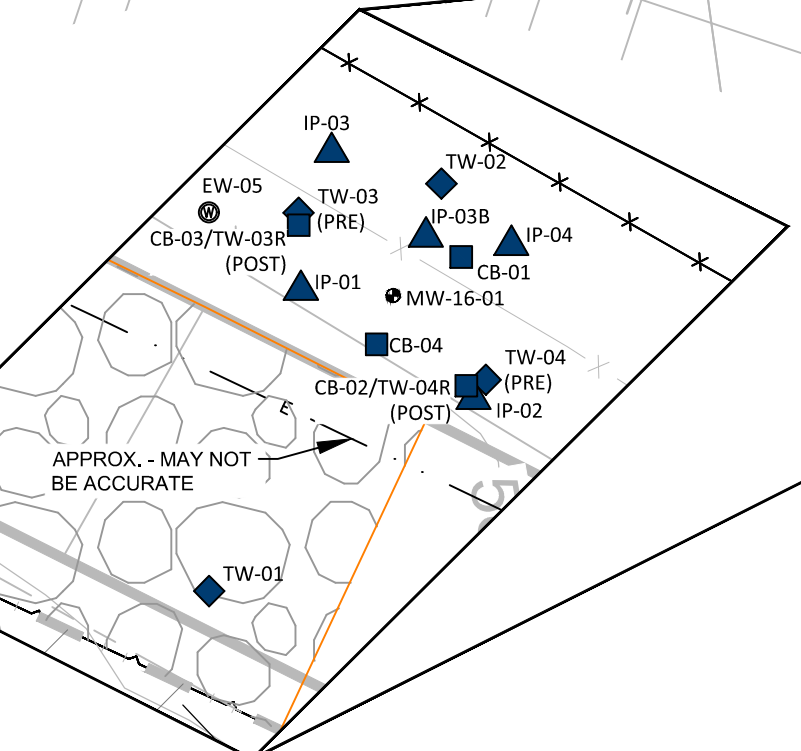
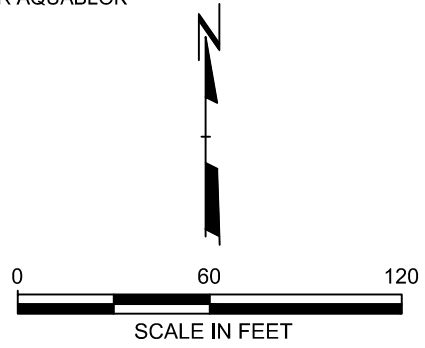
FILE NO: 495769-0000\_fig1.mxd



17411 - ATTACHED REFS: - ATTACHED IMAGES  
 DRAWING NAME: \\Madison-fp\CADD\CADD\100\01\River Rouge\495769.0000\20221\_495769.0000\FIGURE 2.dwg - PLOT DATE: June 22, 2023 - 8:33AM - LAYOUT: PILOT TEST INJECTION AREA CONCEPTUAL LAYOUT



- LEGEND**
- GROUNDWATER EXTRACTION SYSTEM PIPE AND CONDUIT TRENCH
  - EXTRACTION WELL VAULT
  - ⊠ ELECTRICAL PULL BOX
  - ⊞ CLEANOUT (TWO-WAY)
  - ⊟ CLEANOUT (ONE-WAY)
  - FENCE
  - MISCELLANEOUS PIPING
  - DRAIN PIPE
  - ⊕ UPPERMOST AQUIFER MONITORING WELL
  - ⊙ UPPERMOST AQUIFER MONITORING WELL
  - ⊙ MONITORING POINT
  - ⊙ BEDROCK MONITORING WELL
  - ⊕ PERCHED MONITORING WELL
  - ⊕ PERCHED MONITORING WELL
  - ⊕ BAB CLOSURE CONFIRMATORY BORING ADJACENT TO BASIN (FEBRUARY 2020)
  - ⊕ BAB CLOSURE POST - DREDGE CONFIRMATORY BORING (AUGUST 28 AND SEPTEMBER 21, 2020)
  - SB-20-16-POST 2
  - ELECTRIC LINE
  - DRAINS / ASH LINE
  - GAS LINE
  - GAS LINE ABANDONED OR NO LONGER PRESENT
  - SANITARY SEWER LINE
  - WATER LINE
  - EXISTING BASIN BOTTOM CONTOUR (SEE NOTE 3)
  - AS-BUILT FINAL CONTOUR (SEE NOTE 4)
  - ▨ GRAVEL
  - ▨ GRAVEL OVER AQUABLOK
  - ▨ BENTONITE



- ▲ INJECTION POINT LOCATIONS (REDOX TECH)
  - ◆ TEMP WELL LOCATIONS
  - SOIL BORING (POST INJECTION; REDOX TECH)
- LOCATIONS BASED ON FIELD MEASUREMENTS

|   |                          |   |                  |
|---|--------------------------|---|------------------|
| PROJECT:  |                          | DTE ELECTRIC COMPANY<br>RIVER ROUGE POWER PLANT<br>RIVER ROUGE, MICHIGAN                    |                  |
| TITLE:<br><b>PILOT TEST INJECTION AREA LAYOUT</b> |                          |   |                  |
| DRAWN BY:   | G. ASHWORTH              | PROJ. NO.:  | 495769.0000.0000 |
| CHECKED BY:                                       | S. MARKESIC              |   |                  |
| APPROVED BY:                                      |                          | <b>FIGURE 2</b>   |                  |
| DATE:   | DECEMBER 2022            |   |                  |
|   |                          | 1540 Eisenhower Place<br>Ann Arbor, MI 48108<br>Phone: 734.971.7080<br>www.trcsolutions.com |                  |
| FILE NO.:   | 495769.0000 FIGURE 2.dwg |   |                  |

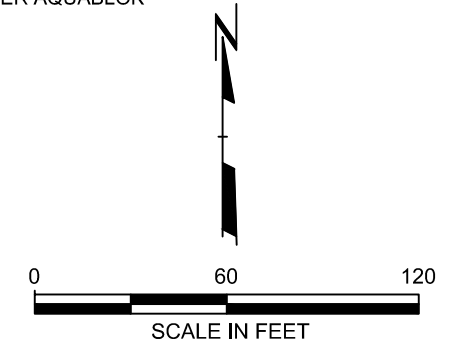
17411 - ATTACHED REFS - ATTACHED IMAGES  
DRAWING NAME: \\Madison-fp\CADD\CADD\JT0010\River Rouge\495769.0000\FIGURE 3.dwg - PLOT DATE: June 21, 2023 - 4:56PM - LAYOUT: Recommended Full-Scale Injection Area Layout

**TARGET AREAS:**

- 8800 SF (AS DEFINED BY EW-03, EW-04, EW-05, EW-08, MW-16-01, AND MW-17-16)
- 5000 SF (AS DEFINED BY MW-17-14 AND MW-17-15)

**LEGEND:**

- GROUNDWATER EXTRACTION SYSTEM PIPE AND CONDUIT TRENCH
- EXTRACTION WELL VAULT
- ELECTRICAL PULL BOX
- CLEANOUT (TWO-WAY)
- CLEANOUT (ONE-WAY)
- FENCE
- MISCELLANEOUS PIPING
- DRAIN PIPE
- UPPERMOST AQUIFER MONITORING WELL
- UPPERMOST AQUIFER MONITORING WELL
- MONITORING POINT
- BEDROCK MONITORING WELL
- PERCHED MONITORING WELL
- PERCHED MONITORING WELL
- BAB CLOSURE CONFIRMATORY BORING ADJACENT TO BASIN (FEBRUARY 2020)
- BAB CLOSURE POST - DREDGE CONFIRMATORY BORING (AUGUST 28 AND SEPTEMBER 21, 2020)
- SB-20-16-POST 2
- ELECTRIC LINE
- DRAINS / ASH LINE
- GAS LINE
- GAS LINE ABANDONED OR NO LONGER PRESENT
- SANITARY SEWER LINE
- WATER LINE
- EXISTING BASIN BOTTOM CONTOUR (SEE NOTE 3)
- AS-BUILT FINAL CONTOUR (SEE NOTE 4)
- GRAVEL
- GRAVEL OVER AQUABLOK
- BENTONITE



**INJECTION POINT LOCATIONS (REDOX TECH)**

- ▲ INJECTION POINT LOCATIONS (REDOX TECH)
- ◆ TEMP WELL LOCATIONS
- SOIL BORING (POST INJECTION; REDOX TECH)

LOCATIONS BASED ON FIELD MEASUREMENTS

APPROX. - MAY NOT BE ACCURATE

PILOT STUDY AREA

|   |                             |
|---|-----------------------------|
| PROJECT: DTE ELECTRIC COMPANY<br>RIVER ROUGE POWER PLANT<br>RIVER ROUGE, MICHIGAN           |                             |
| TITLE: <b>RECOMMENDED FULL-SCALE<br/>INJECTION AREA LAYOUT</b>                              |                             |
| DRAWN BY: R. HAMILTON   | PROJ. NO.: 495769.0000.0000 |
| CHECKED BY: D. MCKENZIE   |                             |
| APPROVED BY: _____  | <b>FIGURE 3</b>             |
| DATE: JUNE 2023   |                             |
|   |                             |
| 1540 Eisenhower Place<br>Ann Arbor, MI 48108<br>Phone: 734.971.7080<br>www.trcsolutions.com |                             |
| FILE NO.: 495769.0000 FIGURE 3.dwg  |                             |

# **Attachment 2**

## **Tables**

**Table 1**  
 Summary of Pilot Test Analytical Results  
 River Rouge Power Plant Bottom Ash Basin  
 River Rouge, Michigan

| Sample Location   | Sample Date | Constituent: | Arsenic      | Ferrous Iron | Iron        | Sulfate      | Antimony     | Barium       | Beryllium   | Boron       | Cadmium     | Calcium     | Chromium | Cobalt  | Lead         | Lithium      | Mercury      | Molybdenum   | Selenium     | Thallium |
|-------------------|-------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|-------------|-------------|-------------|-------------|----------|---------|--------------|--------------|--------------|--------------|--------------|----------|
|                   |             | Unit:        | mg/L         | mg/L         | mg/L        | mg/L         | mg/L         | mg/L         | mg/L        | mg/L        | mg/L        | mg/L        | mg/L     | mg/L    | mg/L         | mg/L         | mg/L         | mg/L         | mg/L         | mg/L     |
| MW-16-01          | 10/12/2022  |              | <b>0.116</b> | <b>2.35</b>  | <b>2.26</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 10/25/2022  |              | <b>0.106</b> | <b>2.25</b>  | <b>2.24</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 11/9/2022   |              | <b>0.099</b> | <b>2.35</b>  | <b>2.50</b> | < 10         | < 0.001      | <b>0.267</b> | < 0.001     | <b>0.91</b> | < 0.0005    | <b>95.4</b> | < 0.005  | < 0.005 | < 0.003      | <b>0.058</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
|                   | 12/1/2022   |              | <b>0.031</b> | <b>518</b>   | <b>588</b>  | <b>1,950</b> | < 0.001      | <b>0.283</b> | < 0.001     | <b>1.22</b> | < 0.0005    | <b>360</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.075</b> | < 0.0002     | <b>0.017</b> | <b>0.008</b> | < 0.002  |
|                   | 12/7/2022   |              | <b>0.024</b> | <b>480</b>   | <b>521</b>  | <b>1,560</b> | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 1/4/2023    |              | <b>0.016</b> | <b>105</b>   | <b>117</b>  | <b>421</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 2/9/2023    |              | <b>0.008</b> | <b>16.2</b>  | <b>17.4</b> | <b>269</b>   | --           | <b>0.085</b> | --          | <b>1.12</b> | --          | <b>122</b>  | --       | --      | --           | <b>0.066</b> | --           | < 0.005      | < 0.005      | --       |
| 5/8/2023          |             | <b>0.004</b> | <b>1.05</b>  | <b>3.26</b>  | <b>184</b>  | < 0.001      | <b>0.067</b> | < 0.001      | <b>0.81</b> | < 0.0005    | <b>66</b>   | < 0.005     | < 0.005  | < 0.003 | <b>0.053</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002      |          |
| MW-16-01 (Dup-01) | 10/25/2022  |              | <b>0.100</b> | <b>2.25</b>  | <b>2.25</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 11/9/2022   |              | <b>0.098</b> | <b>2.35</b>  | <b>2.56</b> | < 10         | < 0.001      | <b>0.268</b> | < 0.001     | <b>0.88</b> | < 0.0005    | <b>92.9</b> | < 0.005  | < 0.005 | < 0.003      | <b>0.056</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
|                   | 12/1/2022   |              | <b>0.031</b> | <b>505</b>   | <b>582</b>  | <b>1,960</b> | < 0.001      | <b>0.278</b> | < 0.001     | <b>1.26</b> | < 0.0005    | <b>354</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.079</b> | < 0.0002     | <b>0.016</b> | <b>0.008</b> | < 0.002  |
|                   | 12/7/2022   |              | <b>0.024</b> | <b>460</b>   | <b>512</b>  | <b>1,560</b> | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 1/4/2023    |              | <b>0.018</b> | <b>106</b>   | <b>117</b>  | <b>418</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 2/9/2023    |              | <b>0.008</b> | <b>15.7</b>  | <b>16.7</b> | <b>273</b>   | --           | <b>0.083</b> | --          | <b>1.09</b> | --          | <b>121</b>  | --       | --      | --           | <b>0.062</b> | --           | < 0.005      | < 0.005      | --       |
| 5/8/2023          |             | <b>0.004</b> | <b>0.9</b>   | <b>3.31</b>  | <b>187</b>  | < 0.001      | <b>0.066</b> | < 0.001      | <b>0.78</b> | < 0.0005    | <b>65.5</b> | < 0.005     | < 0.005  | < 0.003 | <b>0.052</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002      |          |
| PT-TW-01          | 10/12/2022  |              | <b>0.010</b> | <b>1.75</b>  | <b>1.96</b> | <b>84</b>    | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 10/26/2022  |              | <b>0.011</b> | <b>0.70</b>  | <b>0.80</b> | <b>80</b>    | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 11/9/2022   |              | <b>0.009</b> | <b>0.65</b>  | <b>0.72</b> | <b>72</b>    | < 0.001      | <b>0.175</b> | < 0.001     | <b>1.23</b> | < 0.0005    | <b>73.4</b> | < 0.005  | < 0.005 | < 0.003      | <b>0.027</b> | < 0.0002     | <b>0.013</b> | < 0.005      | < 0.002  |
|                   | 12/1/2022   |              | <b>0.009</b> | <b>1.0</b>   | <b>1.08</b> | <b>68</b>    | < 0.001      | <b>0.298</b> | < 0.001     | <b>1.21</b> | < 0.0005    | <b>117</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.034</b> | < 0.0002     | <b>0.009</b> | < 0.005      | < 0.002  |
|                   | 12/7/2022   |              | <b>0.009</b> | <b>1.10</b>  | <b>1.33</b> | <b>116</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 1/4/2023    |              | <b>0.006</b> | <b>1.60</b>  | <b>1.75</b> | <b>181</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 2/9/2023    |              | <b>0.011</b> | <b>1.5</b>   | <b>1.63</b> | <b>263</b>   | --           | <b>0.209</b> | --          | <b>1.32</b> | --          | <b>123</b>  | --       | --      | --           | <b>0.042</b> | --           | <b>0.006</b> | < 0.005      | --       |
| 5/8/2023          |             | <b>0.023</b> | <b>1.55</b>  | <b>1.61</b>  | <b>406</b>  | < 0.001      | <b>0.193</b> | < 0.001      | <b>1.3</b>  | < 0.0005    | <b>151</b>  | < 0.005     | < 0.005  | < 0.003 | <b>0.041</b> | < 0.0002     | <b>0.007</b> | < 0.005      | < 0.002      |          |
| PT-TW-02          | 10/13/2022  |              | <b>0.003</b> | <b>0.70</b>  | <b>0.67</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 10/26/2022  |              | <b>0.003</b> | <b>0.70</b>  | <b>0.70</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 11/9/2022   |              | <b>0.003</b> | <b>0.75</b>  | <b>0.78</b> | < 10         | < 0.001      | <b>0.516</b> | < 0.001     | <b>1.01</b> | < 0.0005    | <b>115</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.055</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
|                   | 12/1/2022   |              | <b>0.007</b> | <b>146</b>   | <b>227</b>  | <b>577</b>   | < 0.001      | <b>0.216</b> | < 0.001     | <b>1.27</b> | < 0.0005    | <b>172</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.068</b> | < 0.0002     | <b>0.012</b> | < 0.005      | < 0.002  |
|                   | 12/7/2022   |              | <b>0.004</b> | <b>85</b>    | <b>92.9</b> | <b>223</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 1/4/2023    |              | < 0.002      | <b>62.5</b>  | <b>64.8</b> | <b>368</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 2/9/2023    |              | < 0.002      | <b>27.7</b>  | <b>29.9</b> | <b>246</b>   | --           | <b>0.422</b> | --          | <b>1.18</b> | --          | <b>161</b>  | --       | --      | --           | <b>0.067</b> | --           | < 0.005      | < 0.005      | --       |
| 5/8/2023          |             | < 0.002      | <b>7.75</b>  | <b>8.56</b>  | <b>103</b>  | < 0.001      | <b>0.24</b>  | < 0.001      | <b>0.71</b> | < 0.0005    | <b>96.7</b> | < 0.005     | < 0.005  | < 0.003 | <b>0.052</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002      |          |
| PT-TW-02 (Dup-01) | 10/13/2022  |              | <b>0.003</b> | <b>0.75</b>  | <b>0.65</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
| PT-TW-03          | 10/12/2022  |              | <b>0.023</b> | <b>1.50</b>  | <b>1.50</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 10/26/2022  |              | <b>0.029</b> | <b>1.0</b>   | <b>0.91</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           | --       |
|                   | 11/9/2022   |              | <b>0.028</b> | <b>0.90</b>  | <b>0.95</b> | < 10         | < 0.001      | <b>0.467</b> | < 0.001     | <b>0.79</b> | < 0.0005    | <b>96.1</b> | < 0.005  | < 0.005 | < 0.003      | <b>0.049</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
| PT-TW-03R         | 12/1/2022   |              | <b>0.078</b> | <b>323</b>   | <b>781</b>  | <b>2,400</b> | < 0.001      | <b>0.377</b> | < 0.001     | <b>1.19</b> | < 0.0005    | <b>380</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.078</b> | < 0.0002     | <b>0.022</b> | <b>0.009</b> | < 0.002  |
|                   | 12/7/2022   |              | <b>0.041</b> | <b>295</b>   | <b>312</b>  | <b>1,610</b> | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           |          |
|                   | 1/4/2023    |              | <b>0.015</b> | <b>118</b>   | <b>125</b>  | <b>854</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           |          |
|                   | 2/9/2023    |              | <b>0.017</b> | <b>39.9</b>  | <b>41.5</b> | <b>681</b>   | --           | <b>0.085</b> | --          | <b>0.72</b> | --          | <b>242</b>  | --       | --      | --           | <b>0.052</b> | --           | < 0.005      | < 0.005      | --       |
|                   | 5/8/2023    |              | <b>0.021</b> | <b>8.9</b>   | <b>9.37</b> | <b>219</b>   | < 0.001      | <b>0.097</b> | < 0.001     | <b>0.64</b> | < 0.0005    | <b>92.9</b> | < 0.005  | < 0.005 | < 0.003      | <b>0.042</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
| PT-TW-04          | 10/12/2022  |              | <b>0.103</b> | <b>1.80</b>  | <b>1.74</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           |          |
|                   | 10/26/2022  |              | <b>0.089</b> | <b>1.50</b>  | <b>1.55</b> | < 10         | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           |          |
| PT-TW-04R         | 11/9/2022   |              | <b>0.073</b> | <b>1.65</b>  | <b>1.73</b> | < 10         | < 0.001      | <b>0.654</b> | < 0.001     | <b>1.12</b> | < 0.0005    | <b>117</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.064</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
|                   | 12/1/2022   |              | <b>0.078</b> | <b>195</b>   | <b>203</b>  | <b>777</b>   | < 0.001      | <b>0.304</b> | < 0.001     | <b>1.33</b> | < 0.0005    | <b>231</b>  | < 0.005  | < 0.005 | < 0.003      | <b>0.075</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002  |
|                   | 12/7/2022   |              | <b>0.069</b> | <b>92.5</b>  | <b>98.0</b> | <b>481</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           |          |
|                   | 1/4/2023    |              | <b>0.046</b> | <b>50</b>    | <b>54.8</b> | <b>154</b>   | --           | --           | --          | --          | --          | --          | --       | --      | --           | --           | --           | --           | --           |          |
|                   | 2/9/2023    |              | <b>0.044</b> | <b>18.5</b>  | <b>19.9</b> | <b>98</b>    | --           | <b>0.28</b>  | --          | <b>0.93</b> | --          | <b>151</b>  | --       | --      | --           | <b>0.065</b> | --           | < 0.005      | < 0.005      | --       |
| 5/8/2023          |             | <b>0.047</b> | <b>7.8</b>   | <b>8.2</b>   | <b>105</b>  | < 0.001      | <b>0.328</b> | < 0.001      | <b>0.79</b> | < 0.0005    | <b>133</b>  | < 0.005     | < 0.005  | < 0.003 | <b>0.049</b> | < 0.0002     | < 0.005      | < 0.005      | < 0.002      |          |
| MW-16-02          | 10/25/2022  |              | <b>0.002</b> | --           | --          | --           | --           | --           | --          | --          | --          | --          | --       | --      | <b>0.012</b> | --           | --           | --           | --           |          |
| MW-16-03          | 10/25/2022  |              | < 0.002      | --           | --          | --           | --           | --           | --          | --          | --          | --          | --       | --      | <b>0.006</b> | --           | --           | --           | --           |          |

**Notes:**  
 mg/L = milligrams per liter; -- = Parameter Not Analyzed  
 Bold font denotes concentrations detected above laboratory reporting limits.



**Table 1**  
 Summary of Pilot Test Analytical Results  
 River Rouge Power Plant Bottom Ash Basin  
 River Rouge, Michigan

| Constituent:    |             | Arsenic      | Ferrous Iron | Iron | Sulfate | Antimony | Barium       | Beryllium | Boron | Cadmium  | Calcium | Chromium | Cobalt  | Lead         | Lithium      | Mercury  | Molybdenum | Selenium | Thallium |
|-----------------|-------------|--------------|--------------|------|---------|----------|--------------|-----------|-------|----------|---------|----------|---------|--------------|--------------|----------|------------|----------|----------|
| Unit:           |             | mg/L         | mg/L         | mg/L | mg/L    | mg/L     | mg/L         | mg/L      | mg/L  | mg/L     | mg/L    | mg/L     | mg/L    | mg/L         | mg/L         | mg/L     | mg/L       | mg/L     | mg/L     |
| Sample Location | Sample Date |              |              |      |         |          |              |           |       |          |         |          |         |              |              |          |            |          |          |
| MW-17-14        | 10/13/2022  | <b>0.003</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.017</b> | --       | --         | --       | --       |
|                 | 11/10/2022  | <b>0.003</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.018</b> | --       | --         | --       | --       |
|                 | 12/8/2022   | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.016</b> | --       | --         | --       | --       |
|                 | 2/10/2023   | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.017</b> | --       | --         | --       | --       |
|                 | 5/9/2023    | <b>0.002</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.018</b> | --       | --         | --       | --       |
| MW-17-15        | 10/13/2022  | <b>0.012</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.028</b> | --       | --         | --       | --       |
|                 | 11/10/2022  | <b>0.097</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.079</b> | --       | --         | --       | --       |
|                 | 12/8/2022   | <b>0.010</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.043</b> | --       | --         | --       | --       |
|                 | 2/10/2023   | <b>0.006</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.031</b> | --       | --         | --       | --       |
|                 | 5/8/2023    | <b>0.012</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.036</b> | --       | --         | --       | --       |
| MW-17-16        | 10/13/2022  | <b>0.106</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.042</b> | --       | --         | --       | --       |
|                 | 11/9/2022   | <b>0.105</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.043</b> | --       | --         | --       | --       |
|                 | 12/7/2022   | <b>0.095</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.047</b> | --       | --         | --       | --       |
|                 | 2/10/2023   | <b>0.095</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.042</b> | --       | --         | --       | --       |
|                 | 5/9/2023    | <b>0.085</b> | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.039</b> | --       | --         | --       | --       |
| MW-17-17        | 10/13/2022  | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.012</b> | --       | --         | --       | --       |
|                 | 11/10/2022  | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.011</b> | --       | --         | --       | --       |
|                 | 12/7/2022   | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.011</b> | --       | --         | --       | --       |
|                 | 2/10/2023   | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.012</b> | --       | --         | --       | --       |
|                 | 5/9/2023    | < 0.002      | --           | --   | --      | --       | --           | --        | --    | --       | --      | --       | --      | --           | <b>0.012</b> | --       | --         | --       | --       |
| Potable Water   | 10/13/2022  | < 0.002      | --           | --   | --      | < 0.005  | <b>0.015</b> | < 0.001   | --    | < 0.0005 | --      | < 0.005  | < 0.005 | <b>0.005</b> | < 0.005      | < 0.0002 | < 0.005    | < 0.005  | < 0.002  |

**Notes:**  
 mg/L = milligrams per liter; -- = Parameter Not Analyzed  
**Bold** font denotes concentrations detected above laboratory reporting limits.

**Table 2**  
 Summary of Pilot Test Field Data  
 River Rouge Power Plant Pilot Injection Test  
 River Rouge, Michigan

| Sample Location         | Sample Date | Depth to Water (ft) | Top of PVC Casing (ft) | Water Elevation (ft) | Dissolved Oxygen (mg/L) | Oxidation Reduction Potential (mV) | pH (SU) | Specific Conductivity (umhos/cm) | Temperature (deg C) | Turbidity (NTU) |
|-------------------------|-------------|---------------------|------------------------|----------------------|-------------------------|------------------------------------|---------|----------------------------------|---------------------|-----------------|
| MW-16-01                | 10/20/2021  | 12.40               | 583.02                 | 570.62               | 0.17                    | -133.3                             | 7.1     | 514                              | 14.7                | 3.7             |
|                         | 2/22/2022   | 13.85               | 583.02                 | 569.17               | 1.20                    | -148.8                             | 7.4     | 538                              | 12.7                | 5.7             |
|                         | 10/12/2022  | 8.61                | 583.02                 | 574.41               | 0.54                    | -148.8                             | 7.3     | 609                              | 13.9                | 3.2             |
|                         | 10/25/2022  | 8.84                | 583.02                 | 574.18               | 1.03                    | -78.1                              | 7.2     | 691                              | 14.3                | 1.6             |
|                         | 11/9/2022   | 8.85                | 583.02                 | 574.17               | 1.02                    | -87.4                              | 7.1     | 1,384                            | 13.8                | 2.2             |
|                         | 11/21/2022  | 9.38                | 583.02                 | 573.64               | --                      | --                                 | --      | --                               | --                  | --              |
|                         | 12/1/2022   | 9.23                | 583.02                 | 573.79               | 0.00                    | -136.4                             | 6.6     | 2,188                            | 12.1                | 11.1            |
|                         | 12/7/2022   | 9.55                | 583.02                 | 573.47               | 0.70                    | -154.5                             | 6.6     | 2,260                            | 12.8                | 3.8             |
|                         | 1/4/2023    | 9.05                | 583.02                 | 573.97               | 0.70                    | -162.7                             | 7.1     | 1,176                            | 12.9                | 4.2             |
|                         | 2/9/2023    | 8.82                | 583.02                 | 574.20               | 1.17                    | -225.8                             | 7.6     | 995                              | 11.5                | 8.7             |
| 5/8/2023                | 8.09        | 583.02              | 574.93                 | 1.24                 | -247.5                  | 8.5                                | 711     | 12.6                             | 4.4                 |                 |
| MW-16-02                | 10/20/2021  | 9.03                | 582.79                 | 573.76               | 0.13                    | -141.0                             | 7.1     | 580                              | 13.8                | 3.9             |
|                         | 2/22/2022   | 10.64               | 582.79                 | 572.15               | 1.23                    | -143.7                             | 7.4     | 555                              | 12.8                | 3.5             |
|                         | 10/25/2022  | 8.67                | 582.79                 | 574.12               | 1.08                    | 61.2                               | 7.2     | 476                              | 13.5                | 2.5             |
| MW-16-03                | 10/20/2021  | 10.52               | 582.75                 | 572.23               | 0.19                    | -110.0                             | 7.0     | 616                              | 13.2                | 2.3             |
|                         | 2/22/2022   | 12.29               | 582.75                 | 570.46               | 1.28                    | -109.0                             | 7.3     | 560                              | 12.9                | 3.6             |
|                         | 10/25/2022  | 8.85                | 582.75                 | 573.90               | 1.09                    | 108.1                              | 7.1     | 505                              | 13.8                | 2.0             |
| PT-TW-01 <sup>(1)</sup> | 10/12/2022  | 6.50                | 581.26                 | 574.76               | 0.63                    | -134.6                             | 7.5     | 781                              | 15.1                | 54.0            |
|                         | 10/26/2022  | 6.72                | 581.26                 | 574.54               | 1.10                    | -59.0                              | 7.4     | 751                              | 14.5                | 2.4             |
|                         | 11/9/2022   | 6.79                | 581.26                 | 574.47               | 1.06                    | -78.5                              | 7.5     | 1,252                            | 14.0                | 2.4             |
|                         | 11/21/2022  | 7.27                | 581.26                 | 573.99               | --                      | --                                 | --      | --                               | --                  | --              |
|                         | 12/1/2022   | 7.10                | 581.26                 | 574.16               | 0.05                    | -111.1                             | 7.3     | 1,061                            | 10.6                | 2.3             |
|                         | 12/7/2022   | 7.10                | 581.26                 | 574.16               | 0.70                    | -106.8                             | 7.2     | 1,030                            | 11.4                | 2.5             |
|                         | 1/4/2023    | 6.91                | 581.26                 | 574.35               | 0.90                    | -128.0                             | 7.5     | 962                              | 11.2                | 1.0             |
|                         | 2/9/2023    | 6.69                | 581.26                 | 574.57               | 1.25                    | -176.2                             | 7.7     | 964                              | 10.0                | 2.4             |
|                         | 5/8/2023    | 5.88                | 581.26                 | 575.38               | 1.29                    | -152.7                             | 7.4     | 978                              | 11.8                | 3.9             |
| PT-TW-02 <sup>(1)</sup> | 10/13/2022  | 8.12                | 582.26                 | 574.14               | 0.70                    | -137.5                             | 7.5     | 711                              | 14.3                | 4.6             |
|                         | 10/26/2022  | 8.10                | 582.26                 | 574.16               | 1.16                    | -42.2                              | 7.3     | 814                              | 14.1                | 2.8             |
|                         | 11/9/2022   | 8.20                | 582.26                 | 574.06               | 1.06                    | -83.5                              | 7.2     | 1,648                            | 13.8                | 2.5             |
|                         | 11/21/2022  | 8.68                | 582.26                 | 573.58               | --                      | --                                 | --      | --                               | --                  | --              |
|                         | 12/1/2022   | 8.40                | 582.26                 | 573.86               | 0.13                    | -158.5                             | 6.8     | 1,378                            | 11.1                | 4.4             |
|                         | 12/7/2022   | 8.50                | 582.26                 | 573.76               | 0.60                    | -178.6                             | 6.9     | 943                              | 12.3                | 2.6             |
|                         | 1/4/2023    | 8.28                | 582.26                 | 573.98               | 0.80                    | -170.9                             | 7.1     | 1,117                            | 12.6                | 4.6             |
|                         | 2/9/2023    | 8.09                | 582.26                 | 574.17               | 1.19                    | -227.2                             | 7.4     | 1,126                            | 11.5                | 3.6             |
|                         | 5/8/2023    | 7.42                | 582.26                 | 574.84               | 1.20                    | -298.8                             | 8.0     | 873                              | 11.7                | 6.2             |

**Notes:**

- = Not measured
- mg/L - milligrams per liter.
- mV - millivolt.
- SU - standard unit.
- umhos/cm - micro-mhos per centimeter.
- deg C - degrees Celsius.
- NTU - nephelometric turbidity units.

(1) Water elevation approximated using ground elevation at MW-16-01.



**Table 2**  
 Summary of Pilot Test Field Data  
 River Rouge Power Plant Pilot Injection Test  
 River Rouge, Michigan

| Sample Location          | Sample Date | Depth to Water (ft) | Top of PVC Casing (ft) | Water Elevation (ft) | Dissolved Oxygen (mg/L) | Oxidation Reduction Potential (mV) | pH (SU) | Specific Conductivity (umhos/cm) | Temperature (deg C) | Turbidity (NTU) |
|--------------------------|-------------|---------------------|------------------------|----------------------|-------------------------|------------------------------------|---------|----------------------------------|---------------------|-----------------|
| PT-TW-03 <sup>(1)</sup>  | 10/12/2022  | 6.90                | 581.31                 | 574.41               | 0.57                    | -174.8                             | 7.4     | 673                              | 14.8                | 9.6             |
|                          | 10/26/2022  | 7.00                | 581.31                 | 574.31               | 1.13                    | -89.1                              | 7.3     | 708                              | 13.5                | 3.2             |
|                          | 11/9/2022   | 7.05                | 581.31                 | 574.26               | 1.03                    | -101.0                             | 7.3     | 1,408                            | 14.3                | 2.9             |
|                          | 11/21/2022  | 7.53                | 581.31                 | 573.78               | --                      | --                                 | --      | --                               | --                  | --              |
| PT-TW-03R <sup>(1)</sup> | 12/1/2022   | 8.30                | 582.36                 | 574.06               | 0.12                    | -128.3                             | 6.6     | 2,251                            | 10.9                | 17.6            |
|                          | 12/7/2022   | 8.30                | 582.36                 | 574.06               | 0.80                    | -146.8                             | 6.7     | 2,162                            | 12.2                | 4.6             |
|                          | 1/4/2023    | 8.00                | 582.36                 | 574.36               | 0.80                    | -136.3                             | 6.9     | 1,551                            | 12.7                | 4.8             |
|                          | 2/9/2023    | 7.75                | 582.36                 | 574.61               | 1.23                    | -180.7                             | 7.1     | 1,347                            | 11.0                | 3.7             |
|                          | 5/8/2023    | 7.02                | 582.36                 | 575.34               | 1.22                    | -169.4                             | 7.2     | 739                              | 12.0                | 10.5            |
| PT-TW-04 <sup>(1)</sup>  | 10/12/2022  | 8.15                | 582.29                 | 574.14               | 0.60                    | -148.7                             | 7.3     | 674                              | 14.9                | 8.7             |
|                          | 10/25/2022  | 8.07                | 582.29                 | 574.22               | 1.14                    | -20.1                              | 7.1     | 875                              | 13.9                | 2.1             |
|                          | 11/9/2022   | 8.22                | 582.29                 | 574.07               | 1.08                    | -89.4                              | 7.1     | 1,690                            | 13.5                | 2.1             |
|                          | 11/21/2022  | 8.69                | 582.29                 | 573.60               | --                      | --                                 | --      | --                               | --                  | --              |
| PT-TW-04R <sup>(1)</sup> | 12/1/2022   | 9.00                | 582.46                 | 573.46               | 0.01                    | -124.5                             | 6.7     | 1,534                            | 11.5                | 11.4            |
|                          | 12/7/2022   | 8.83                | 582.46                 | 573.63               | 0.70                    | -151.0                             | 6.8     | 1,328                            | 12.5                | 4.2             |
|                          | 1/4/2023    | 8.66                | 582.46                 | 573.80               | 0.80                    | -158.2                             | 7.2     | 1,248                            | 12.6                | 3.9             |
|                          | 2/9/2023    | 8.41                | 582.46                 | 574.05               | 1.19                    | -200.3                             | 7.3     | 1,383                            | 11.5                | 4.5             |
|                          | 5/8/2023    | 7.70                | 582.46                 | 574.76               | 1.28                    | -163.7                             | 7.2     | 1,358                            | 11.7                | 3.0             |
| MW-17-14                 | 10/20/2021  | 8.61                | 579.35                 | 570.74               | 0.21                    | -79.3                              | 7.2     | 473                              | 14.0                | 1.6             |
|                          | 10/13/2022  | 4.90                | 579.35                 | 574.45               | 0.74                    | -97.3                              | 6.9     | 2,709                            | 14.1                | 4.8             |
|                          | 11/10/2022  | 4.95                | 579.35                 | 574.40               | 1.02                    | -55.2                              | 6.8     | 3,175                            | 14.2                | 2.3             |
|                          | 12/8/2022   | 5.42                | 579.35                 | 573.93               | 0.70                    | -81.6                              | 7.0     | 2,229                            | 12.4                | 1.9             |
|                          | 2/10/2023   | 5.02                | 579.35                 | 574.33               | 1.50                    | -104.1                             | 7.1     | 1,930                            | 10.6                | 1.5             |
|                          | 5/9/2023    | 4.28                | 579.35                 | 575.07               | 1.22                    | -108.4                             | 6.8     | 1,796                            | 12.2                | 3.5             |
| MW-17-15                 | 10/20/2021  | 8.80                | 579.75                 | 570.95               | 0.62                    | -37.9                              | 7.0     | 1,580                            | 16.7                | 29.9            |
|                          | 10/13/2022  | 5.25                | 579.75                 | 574.50               | 0.72                    | -91.5                              | 6.9     | 2,939                            | 14.0                | 17.9            |
|                          | 11/10/2022  | 5.42                | 579.75                 | 574.33               | 1.19                    | -1.1                               | 6.9     | 2,875                            | 14.7                | 8.6             |
|                          | 12/8/2022   | 5.72                | 579.75                 | 574.03               | 1.00                    | -28.4                              | 7.2     | 1,654                            | 12.0                | 15.7            |
|                          | 2/10/2023   | 5.32                | 574.43                 | 569.11               | 1.45                    | -64.3                              | 7.4     | 1,406                            | 10.0                | 5.6             |
|                          | 5/8/2023    | 4.51                | 574.43                 | 569.92               | 1.19                    | -109.2                             | 6.9     | 1,535                            | 12.0                | 8.5             |

**Notes:**

- = Not measured
- mg/L - milligrams per liter.
- mV - millivolt.
- SU - standard unit.
- umhos/cm - micro-mhos per centimeter.
- deg C - degrees Celsius.
- NTU - nephelometric turbidity units.

(1) Water elevation approximated using ground elevation at MW-16-01.

**Table 2**  
 Summary of Pilot Test Field Data  
 River Rouge Power Plant Pilot Injection Test  
 River Rouge, Michigan

| Sample Location | Sample Date | Depth to Water (ft) | Top of PVC Casing (ft) | Water Elevation (ft) | Dissolved Oxygen (mg/L) | Oxidation Reduction Potential (mV) | pH (SU) | Specific Conductivity (umhos/cm) | Temperature (deg C) | Turbidity (NTU) |
|-----------------|-------------|---------------------|------------------------|----------------------|-------------------------|------------------------------------|---------|----------------------------------|---------------------|-----------------|
| MW-17-16        | 10/20/2021  | 7.89                | 579.73                 | 571.84               | --                      | --                                 | --      | --                               | --                  | --              |
|                 | 10/13/2022  | 5.75                | 579.73                 | 573.98               | 0.81                    | -130.0                             | 7.4     | 500                              | 14.2                | 1.3             |
|                 | 11/9/2022   | 5.80                | 579.73                 | 573.93               | 1.05                    | -109.2                             | 7.4     | 834                              | 14.4                | 3.0             |
|                 | 12/7/2022   | 6.10                | 579.73                 | 573.63               | 0.80                    | -116.0                             | 7.3     | 368                              | 13.5                | 3.0             |
|                 | 2/10/2023   | 5.64                | 579.73                 | 574.09               | 1.42                    | -43.0                              | 7.4     | 406                              | 10.6                | 2.5             |
|                 | 5/9/2023    | 4.83                | 579.73                 | 574.90               | 1.28                    | -138.5                             | 7.2     | 403                              | 11.5                | 4.8             |
| MW-17-17        | 10/20/2021  | 6.38                | 579.35                 | 572.97               | --                      | --                                 | --      | --                               | --                  | --              |
|                 | 10/13/2022  | 5.73                | 579.35                 | 573.62               | 0.82                    | -72.4                              | 7.0     | 940                              | 13.2                | 3.8             |
|                 | 11/10/2022  | 5.32                | 579.35                 | 574.03               | 1.06                    | 22.7                               | 6.8     | 838                              | 14.0                | 1.8             |
|                 | 12/7/2022   | 5.60                | 579.35                 | 573.75               | 0.80                    | -78.1                              | 7.0     | 576                              | 12.5                | 2.8             |
|                 | 2/10/2023   | 5.42                | 579.35                 | 573.93               | 1.45                    | -28.0                              | 7.0     | 691                              | 10.5                | 3.5             |
|                 | 5/9/2023    | 4.35                | 579.35                 | 575.00               | 1.21                    | -118.9                             | 6.7     | 878                              | 12.2                | 2.5             |

**Notes:**

- = Not measured
- mg/L - milligrams per liter.
- mV - millivolt.
- SU - standard unit.
- umhos/cm - micro-mhos per centimeter.
- deg C - degrees Celsius.
- NTU - nephelometric turbidity units.
- (1) Water elevation approximated using ground elevation at MW-16-01.

# **Attachment 3**

## **Soil Boring and Well Logs**



|                       |  |
|-----------------------|--|
| PROJECT NAME:         | DTE: RRPP In Situ test for As GW Remed   |
| PROJECT NUMBER:       | 495769.0000.0000                         |
| PROJECT MANAGER:      | Dave Mckenzie                            |
| SITE LOCATION:        | 1 Belanger Park Drive<br>River Rouge, MI |
| DATES OF FIELDWORK:   | 10/6/2022 TO                             |
| PURPOSE OF FIELDWORK: | Install Temporary Monitoring Wells       |
| WORK PERFORMED BY:    | Jake Krenz                               |

Jal Ky 10-14-22  
SIGNED DATE

HS 10/26/22  
CHECKED BY DATE

10-6-22



Merit  
Laboratories, Inc.

Pg 2 of 19

Merit Laboratories, Inc.

| well ID          | DTW (ft) | Time |
|------------------|----------|------|
| MW-16-01         | 8.51     | 0806 |
| MW-16-02         | 8.32     | 0809 |
| MW-16-03         | 8.53     | 0812 |
| MP-01            | 3.22     | 0822 |
| MW-17-16         | 5.51     | 0831 |
| <del>MW-16</del> |          |      |
| MW-17-14         | 4.66     | 0839 |
| MW-16-04s        | 7.80     | 0846 |
| MP-04            | 4.78     | 0900 |
| MP-03            | 4.10     | 0914 |

on 10-6-22

0740 - on site, contacted Mike Krupp to sign on for me, start water levels

0815 - GPRS on site and begin locating

0845 - call Steve Markesic and gave him water levels noted above, collected MP-04 and MP-03 and texted measurements to Steve.

0945 - JSS on site, perform H&S tailgate with them

1015 - Begin Drilling first temp well PT-TW-01

1148 - Begin Drilling second temp well PT-TW-02

www.meritlabs.com

*Handwritten signature*  
10/14/22  
(517) 332.0167  
HS 10/26/22





**Merit**  
Laboratories, Inc.

Merit Laboratories, Inc.

Pg 3 of 19



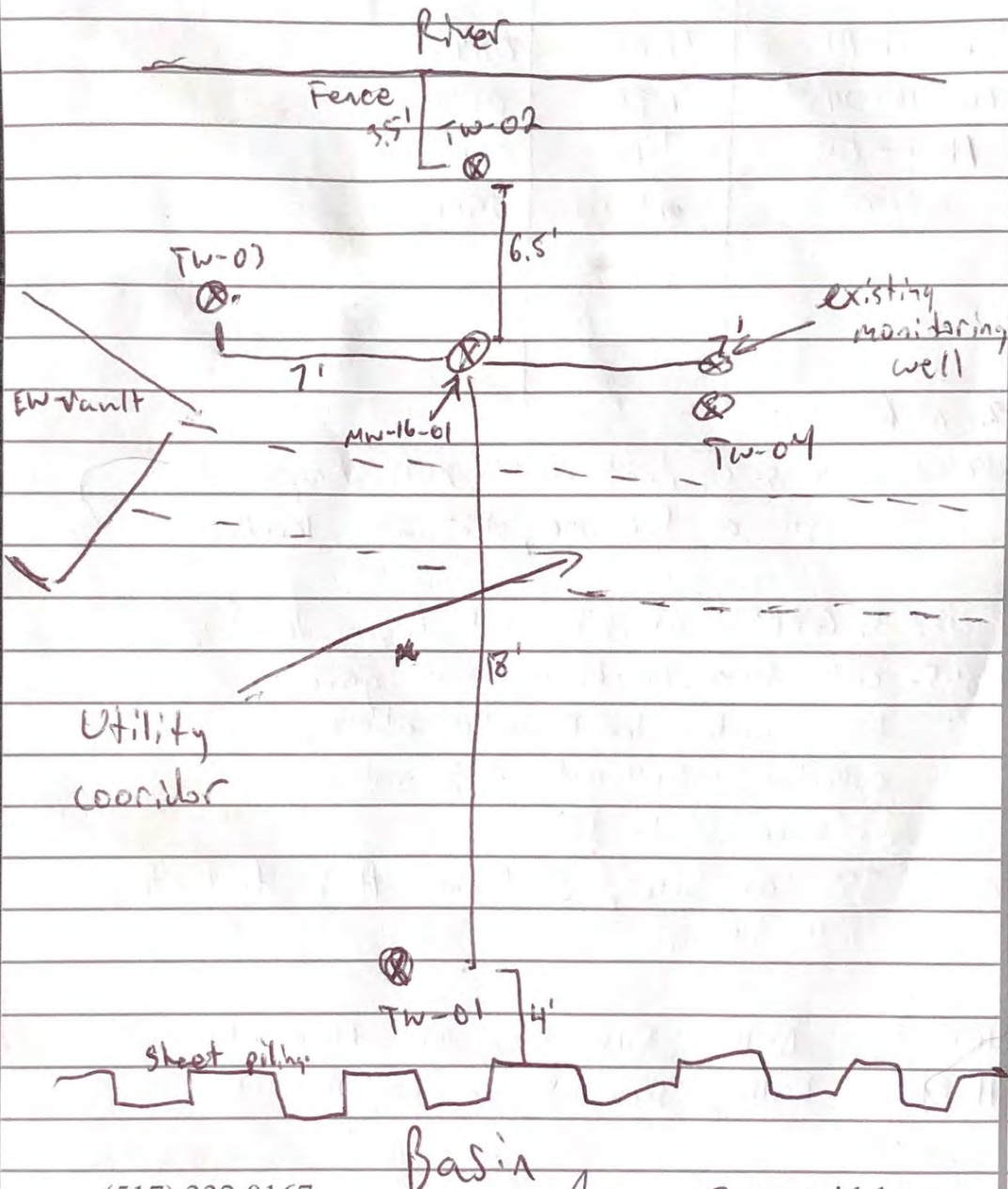
10-6-22

1310 - Begin drilling Third temp well PT-TW-03

1440 - Begin drilling Fourth temp well PT-TW-04

1536 - Finished setting last well, clean up site.

1600 - off-site



(517) 332.0167

145 10/25/22

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JL R 10-19-22



**LOG OF SOIL BORING**

|  |   |
|--|---|
| PROJECT NAME: DTE: RRPP In Situ test for As GW Remed | SOIL BORING ID: PI-7W-01                              |
| PROJECT NUMBER: 495769 0000 0000                     | LOCATION: upgradient, S. of MW-16-01, close to basin. |
| LOGGED BY: Jake Krenz                                | SHEET 1 OF 3  |
| PROJECT LOCATION: 1 Belanger Park Drive              | DATE STARTED: 10-6-22                                 |
| DRILLED BY: Job Site Services                        | DRILLER NAME: Lou Niman                               |
|  | DATE COMPLETED: 10-6-22                               |

| NO. | TYPE | %  | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS   | COMMENT |
|-----|------|----|-------|-----|-------|--|---------|
| 1   | DP   | 60 | NA    | NM  | 1     | Sandy gravel, no gravel, some fine-grained sand, gray (10% S/S), dry, loose  |         |
|     |      |    |       |     | 2     |  |         |
|     |      |    |       |     | 3     |  |         |
|     |      |    |       |     | 4     |  |         |
|     |      |    |       |     | 5     | Sand w Gravel, no fine-grained sand, few little gravel, few-little fine sand, few silt, tr clay, brown color S/S, moist, loose |         |
|     |      |    |       |     | 6     |  |         |
|     |      |    |       |     | 7     |  |         |
| 2   | DP   | 50 | NA    | NM  | 8     | Gravel w/ sand, no gravel, some fine-grained sand, brown (10% S/S), moist, loose   |         |
|     |      |    |       |     | 9     | A to wet @ 9.0'  |         |
|     |      |    |       |     | 10    | silty clay, no clay few-little silt, gray, med (10% S/S) plast, moist, soft.   |         |

|                                |
|--------------------------------|
| DRILLING METHOD<br>Direct Push |
| DRILL RIG<br>Geoprobe 7822 DT  |
| BORING DIAMETER<br>3"          |

| WATER LEVEL OBSERVATIONS |      |                |                 |
|--------------------------|------|----------------|-----------------|
| FIRST OCCURRENCE: 15'    |      |                |                 |
| DATE                     | TIME | DEPTH TO WATER | DEPTH TO BOTTOM |
|                          |      |                |                 |
|                          |      |                |                 |

SIGNED: JL King DATE: 10-14-22 CHECKED: H-5 DATE: 10/26/22





**LOG OF SOIL BORING**

SHEET 2 OF 3

PROJECT NAME: DTE: RRPP In Situ test for As GW Remed SOIL BORING ID: PT-TW-01

| NO | TYPE | %   | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS                                | COMMENT |
|----|------|-----|-------|-----|-------|---|---------|
|    |      |     |       |     |       | SAF @ 9.5'  |         |
|    |      |     |       |     | 11    |   |         |
|    |      |     |       |     | 12    |   |         |
| 3  | DP   | 40  | NA    | NM  |       |   |         |
|    |      |     |       |     | 13    |   |         |
|    |      |     |       |     | 14    |   |         |
|    |      |     |       |     |       | ASH, coal ash, black, wet, loose                                      |         |
|    |      |     |       |     | 15    |   |         |
|    |      |     |       |     |       | Silty Sand, no fn sand, little - some silt, gray (10YK5/1) wet, loose |         |
|    |      |     |       |     | 16    |   |         |
|    |      |     |       |     | 17    |   |         |
| 4  | DP   | 100 | NA    | NM  |       |   |         |
|    |      |     |       |     | 18    |   |         |
|    |      |     |       |     | 19    |   |         |
|    |      |     |       |     | 20    |   |         |
|    |      |     |       |     | 21    |   |         |
| 5  | DP   | 80  | NA    | NA  |       |   |         |
|    |      |     |       |     | 22    |   |         |

SIGNED: *fel Key* DATE: 10-14-22

CHECKED: *HJ* DATE: 10/26/22





LOG OF SOIL BORING

SHEET 3 OF 3

PROJECT NAME: DTE: RRPP In Situ test for As GW Remed SOIL BORING ID: PT-TW-01

| NO | TYPE | %  | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS  | COMMENT                         |
|----|------|----|-------|-----|-------|---|---------------------------------|
|    |      |    |       |     |       | SAA @ 15'   |                                 |
| 5  | DP   | 80 | NA    | NM  | 23    | silty clay, no clay, some silt, med-high plat, gray to red, wet, soft.<br>Gravel, no gravel few-little red-cs sand, gray (10% S/T)  | ← Dist<br>100SR<br>Dist<br>1000 |
|    |      |    |       |     | 24    | <del>silty clay, no clay, some silt, gray, med-high plat, wet, soft</del><br><del>Gravel, no gravel few-little red-cs sand, gray (10% S/T), wet, soft</del><br>clay no clay, few silt, med plat, gray 10% S/T, wet, soft. | Temp well<br>Screened<br>19-24' |
| 6  | DP   |    | NA    | NM  | 26    |   |                                 |
|    |      |    |       |     | 27    | EOB @ 27.0' BGS   |                                 |
|    |      |    |       |     | 28    |   |                                 |
|    |      |    |       |     | 29    |   |                                 |
|    |      |    |       |     | 30    |   |                                 |

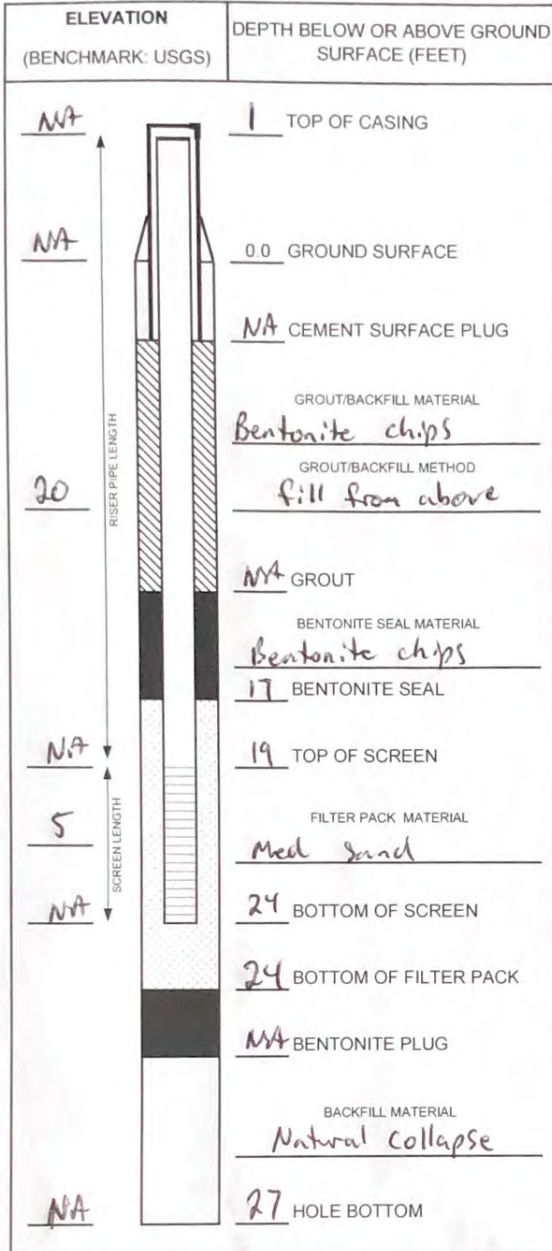
SIGNED: *Jul King* 10-14-22 DATE

CHECKED: *MS* 10/26/22 DATE



### WELL CONSTRUCTION DIAGRAM

|  |   |
|--|---|
| PROJ. NAME: DTE: RRPP In Situ test for As GW Remed | WELL ID: <u>PT-TW-01</u>                                |
| PROJ. NO: 495769.0000.0                            | DATE INSTALLED: <u>10-6-22</u> INSTALLED BY: Jake Krenz |
| CHECKED BY: <u>HS 10/24/22</u>                     |   |



NOTES: Temporary monitoring well

#### CASING AND SCREEN DETAILS

TYPE OF RISER: PVC 1"  
 PIPE SCHEDULE: 40  
 PIPE JOINTS: threaded O-ring  
 SOLVENT USED?: none  
 SCREEN TYPE: Pvc 1"  
 SCR. SLOT SIZE: 0.10

BOREHOLE DIAMETER: 3 IN. FROM 0 TO 27 FT.  
 — IN. FROM — TO — FT.  
 SURF. CASING DIAMETER: — IN. FROM — TO — FT.  
 — IN. FROM — TO — FT.

#### WELL DEVELOPMENT

DEVELOPMENT METHOD: peristaltic pump  
 TIME DEVELOPING: 35 HOURS/MINS  
 WATER REMOVED: 8 GALLONS  
 WATER ADDED: 0 GALLONS

WATER CLARITY BEFORE / AFTER DEVELOPMENT

CLARITY BEFORE: Very Turbid  
 COLOR BEFORE: gray  
 CLARITY AFTER: clear  
 COLOR AFTER: clear  
 ODOR (IF PRESENT): none

#### WATER LEVEL SUMMARY

| MEASUREMENT (FEET)                     | DATE      | TIME      |
|--|-----------|-----------|
| DTB BEFORE DEVELOPING: <u>NA</u> T/PVC | <u>NA</u> | <u>NA</u> |
| DTB AFTER DEVELOPING: T/PVC            |           |           |
| SWE BEFORE DEVELOPING: T/PVC           |           |           |
| SWE AFTER DEVELOPING: T/PVC            |           |           |
| OTHER SWE: T/PVC                       |           |           |
| OTHER SWE: T/PVC                       |           |           |

#### PROTECTIVE CASING DETAILS

PERMANENT, LEGIBLE WELL LABEL ADDED?  YES  NO  
 PROTECTIVE COVER AND LOCK INSTALLED?  YES  NO  
 LOCK KEY NUMBER: NA





**LOG OF SOIL BORING**

|                  |                                       |                 |   |
|------------------|---------------------------------------|-----------------|---|
| PROJECT NAME     | DTE RRPP In Situ test for As GW Remed | SOIL BORING ID: | PT-TW-02  |
| PROJECT NUMBER   | 495769 0000 0000                      | LOCATION        | Downgradient, North of MW-16-01, close to the fence as possible |
| LOGGED BY        | Jake Krenz                            | SHEET           | 1 OF 3  |
| PROJECT LOCATION | 1 Belanger Park Drive                 | SURFACE ELEV.   | N/A   |
| DRILLED BY       | Job Site Services                     | DATE STARTED    | 10-6-22   |
| DRILLER NAME     | Low Dinnan                            | DATE COMPLETED  | 10-6-22   |

| NO | TYPE | %  | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS  | COMMENT |
|----|------|----|-------|-----|-------|---|---------|
|    |      |    |       |     |       | Ash, no coal ash, black, dry, loose   |         |
| 1  | DP   | 60 | NA    | NM  | 1     | Sandy gravel, no gravel, some burned sand light gray (10% 1/2), dry, loose.                               |         |
|    |      |    |       |     | 2     |   |         |
|    |      |    |       |     | 3     |   |         |
|    |      |    |       |     | 4     |   |         |
|    |      |    |       |     | 5     | Sandy clay, no clay, little - some fine sand, few silt, Tr grow low plast, Brown (10% 5/), dry, med dense |         |
|    |      |    |       |     | 6     | clay, no, silty clay, no clay, few - little silt, gray, med plast, moist, soft.                           |         |
| 2  | DP   | 70 | NA    | NM  | 7     |   |         |
|    |      |    |       |     | 8     |   |         |
|    |      |    |       |     | 9     |   |         |
|    |      |    |       |     | 10    |   |         |

|                 |                  |
|-----------------|------------------|
| DRILLING METHOD | Direct Push      |
| DRILL RIG       | Geoprobe 7822 DT |
| BORING DIAMETER | 3"               |

| WATER LEVEL OBSERVATIONS |      |                |                 |
|--------------------------|------|----------------|-----------------|
| FIRST OCCURRENCE: 15'    |      |                |                 |
| DATE                     | TIME | DEPTH TO WATER | DEPTH TO BOTTOM |
|                          |      |                |                 |
|                          |      |                |                 |

SIGNED Jul King DATE 10-14-22

CHECKED LS DATE 10/26/22



### LOG OF SOIL BORING

SHEET 2 OF 3

PROJECT NAME: DTE RRPP In Situ test for As GW Remed | SOIL BORING ID: PT-TW-02

| NO | TYPE | %   | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS                                       | COMMENT |
|----|------|-----|-------|-----|-------|--|---------|
| 3  | DP   | 75  | NA    | NM  | 6.0   | SAA @ 6.0'   |         |
|    |      |     |       |     | 11    |  |         |
|    |      |     |       |     | 12    |  |         |
|    |      |     |       |     | 13    |  |         |
|    |      |     |       |     | 14    |  |         |
| 4  | DP   | 100 | NA    | NM  | 13.5  | Δ to few fine sand @ 13.5'   |         |
|    |      |     |       |     | 14    |  |         |
|    |      |     |       |     | 15    | silty sand, no fn sand, some little - some silt, gray (0.4R S/I), wet, loose |         |
|    |      |     |       |     | 16    |  |         |
|    |      |     |       |     | 17    |  |         |
| 5  | DP   | 85  | NA    | NM  | 20    |  |         |
|    |      |     |       |     | 21    |  |         |
|    |      |     |       |     | 22    |  |         |
|    |      |     |       |     |       |  |         |
|    |      |     |       |     |       |  |         |

SIGNED: [Signature] DATE: 10-14-22

CHECKED: 145 DATE: 10/20/22





### LOG OF SOIL BORING

SHEET 3 OF 3

PROJECT NAME: DTE RRPP In Situ test for As GW Remed SOIL BORING ID: PT-TW-02

| NO | TYPE | %  | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS                                     | COMMENT                      |
|----|------|----|-------|-----|-------|--|------------------------------|
| 5  | DP   | 85 | NA    | NM  | 23    | SAA @ 15.0'  |                              |
|    |      |    |       |     | 24    | Silty clay, no clay, some silty med-high plast, gray (10% RS1) wet, soft.  | Dash                         |
|    |      |    |       |     | 25    | gravel, no gravel, few little med-ers sand, gray (10% RS1) wet, loose.     |                              |
| 6  | DP   | 50 | NA    | NM  | 26    | clay, no clay, few silt, med plast, gray 10% RS1 wet, <del>too</del> soft. | Temp well screened 25.5-25.5 |
|    |      |    |       |     | 27    | FOB @ 27.0' BGS  |                              |
|    |      |    |       |     | 28    |  |                              |
|    |      |    |       |     | 29    |  |                              |
|    |      |    |       |     | 30    |  |                              |

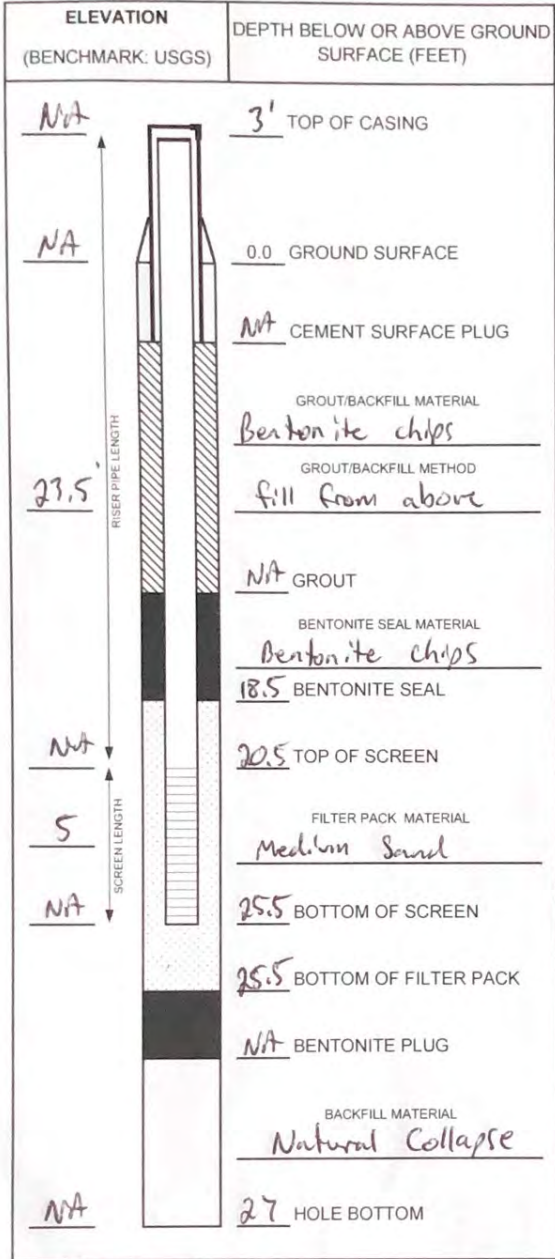
SIGNED: *[Signature]* DATE: 10-14-22

CHECKED: MS DATE: 10/26/22



### WELL CONSTRUCTION DIAGRAM

|  |  |
|--|--|
| PROJ. NAME: DTE: RRPP In Situ test for As GW Remed | WELL ID: PT-TW-02                                |
| PROJ. NO: 495769.0000                              | DATE INSTALLED: 10-6-22 INSTALLED BY: Jake Krenz |
| CHECKED BY: HS W/26/22                             |  |



#### CASING AND SCREEN DETAILS

TYPE OF RISER: 1" PVC  
 PIPE SCHEDULE: 40  
 PIPE JOINTS: Threaded O-Ring  
 SOLVENT USED?: None  
 SCREEN TYPE: 1" PVC  
 SCR. SLOT SIZE: 0.10"

BOREHOLE DIAMETER: 3" IN. FROM 0 TO 27 FT.  
NA IN. FROM NA TO NA FT.

SURF. CASING DIAMETER: NA IN. FROM NA TO NA FT.  
NA IN. FROM NA TO NA FT.

#### WELL DEVELOPMENT

DEVELOPMENT METHOD: peristaltic pump  
 TIME DEVELOPING: 40 HOURS mins  
 WATER REMOVED: 10 GALLONS  
 WATER ADDED: 0 GALLONS

WATER CLARITY BEFORE / AFTER DEVELOPMENT

CLARITY BEFORE: Very Turbid  
 COLOR BEFORE: gray  
 CLARITY AFTER: clear  
 COLOR AFTER: clear  
 ODOR (IF PRESENT): none

#### WATER LEVEL SUMMARY

|                        | MEASUREMENT (FEET) |       | DATE      | TIME      |
|------------------------|--------------------|-------|-----------|-----------|
| DTB BEFORE DEVELOPING: | <u>NA</u>          | T/PVC | <u>NA</u> | <u>NA</u> |
| DTB AFTER DEVELOPING:  | ↓                  | T/PVC | ↓         | ↓         |
| SWE BEFORE DEVELOPING: | ↓                  | T/PVC | ↓         | ↓         |
| SWE AFTER DEVELOPING:  | ↓                  | T/PVC | ↓         | ↓         |
| OTHER SWE:             | ↓                  | T/PVC | ↓         | ↓         |
| OTHER SWE:             | ↓                  | T/PVC | ↓         | ↓         |

NOTES: Temporary Monitoring well

#### PROTECTIVE CASING DETAILS

PERMANENT, LEGIBLE WELL LABEL ADDED?  YES  NO  
 PROTECTIVE COVER AND LOCK INSTALLED?  YES  NO  
 LOCK KEY NUMBER: \_\_\_\_\_





### LOG OF SOIL BORING

|   |  |                        |
|---|--|------------------------|
| PROJECT NAME: DTE RRPP In Situ test for As GW Remed | SOIL BORING ID: DT-TW-03                   |                        |
| PROJECT NUMBER 495769 0000 0000                     | LOCATION west of MW-16-01<br>7' North ~ 1' | SHEET 1 OF 3           |
| LOGGED BY Jake Krenz                                |  | SURFACE ELEV _____     |
| PROJECT LOCATION 1 Belanger Park Drive              | N _____ E _____                            | DATE STARTED 10-6-22   |
| DRILLED BY Job Site Services                        | DRILLER NAME Lou Dinnan                    | DATE COMPLETED 10-6-22 |

| NO. | TYPE | %  | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS  | COMMENT |
|-----|------|----|-------|-----|-------|---|---------|
| 1   | DP   | 60 | NA    | NM  | 1     | Sandy gravel, no gravel, some fn-med sand light gray (10% ), Dry loose  |         |
|     |      |    |       |     | 2     | Silty sand, no fn sand, little-some silt, gray (10% silt) wet, 100  |         |
|     |      |    |       |     | 3     | SAA @ 0 ft  |         |
|     |      |    |       |     | 4     | Sand, no fn sand, yellowst brown (10% ), Dry, loose   |         |
|     |      |    |       |     | 5     | Ash, coal ash, v dark gray (10% ), Dry, loose   |         |
| 2   | DP   | 50 | NA    | NM  | 6     | Sandy clay, no clay, some fn-med sand, few c/s sand, tr-few gravel, tr-few silt, low plast, brown (10% silt), moist, med dense. |         |
|     |      |    |       |     | 7     |   |         |
|     |      |    |       |     | 8     | Silty clay, no clay few-little silt, med plast gray (10% silt) moist, soft  |         |
|     |      |    |       |     | 9     |   |         |
|     |      |    |       |     | 10    |   |         |

DRILLING METHOD  
**Direct Push**

DRILL RIG  
**Geoprobe 7822 DT**

BORING DIAMETER  
**3"**

| WATER LEVEL OBSERVATIONS |      |                |                 |
|--------------------------|------|----------------|-----------------|
| FIRST OCCURRENCE 15'     |      |                |                 |
| DATE                     | TIME | DEPTH TO WATER | DEPTH TO BOTTOM |
|                          |      |                |                 |
|                          |      |                |                 |

SIGNED J. King DATE 10-14-22

CHECKED HJ DATE 10/26/22



### LOG OF SOIL BORING

SHEET 2 OF 3

PROJECT NAME DTE RRPP In Situ test for As GW Remed SOIL BORING ID: PT-TW-03

| NO | TYPE | %   | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS   | COMMENT |
|----|------|-----|-------|-----|-------|--|---------|
| 3  | DP   | 100 | NA    | NM  | 11    |  |         |
|    |      |     |       |     | 12    |  |         |
|    |      |     |       |     | 13    | Silty clay w sand, no clay, few-little silt, few to little fn sand, grad, med plast, moist, soft to med dense. |         |
| 4  | DP   | 100 | NA    | NM  | 14    |  |         |
|    |      |     |       |     | 15    | Silty sand, no fn sand, little-some silt, gray (Oxide S/I), wet, loose   |         |
|    |      |     |       |     | 16    |  |         |
| 5  | DP   | 100 | NA    | NM  | 17    |  |         |
|    |      |     |       |     | 18    |  |         |
|    |      |     |       |     | 19    |  |         |
|    |      |     |       |     | 20    |  |         |
|    |      |     |       |     | 21    |  |         |
|    |      |     |       |     | 22    |  |         |

SIGNED *[Signature]* DATE 10-14-22

CHECKED *[Signature]* DATE 10/26/22

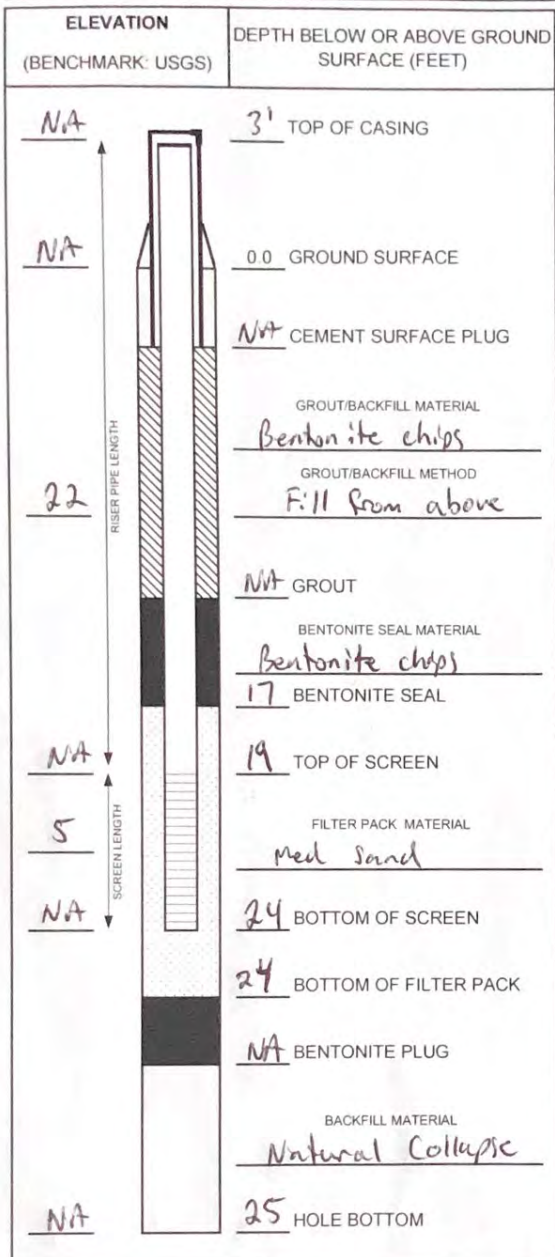






### WELL CONSTRUCTION DIAGRAM

|   |  |
|---|--|
| PROJ NAME: DTE: RRPP In Situ test for As GW Remed | WELL ID: PT-TW-03                                |
| PROJ NO: 495769.0000.0                            | DATE INSTALLED: 10-6-22 INSTALLED BY: Jake Krenz |
| CHECKED BY: HS 10/26/22                           |  |



NOTES:  
Temporary well

| CASING AND SCREEN DETAILS |   |
|---------------------------|---|
| TYPE OF RISER:            | <u>1" PVC</u>                                 |
| PIPE SCHEDULE:            | <u>40</u>                                     |
| PIPE JOINTS:              | <u>Threaded O-ring</u>                        |
| SOLVENT USED?             | <u>None</u>                                   |
| SCREEN TYPE:              | <u>1" PVC</u>                                 |
| SCR. SLOT SIZE:           | <u>0.10"</u>                                  |
| BOREHOLE DIAMETER:        | <u>3"</u> IN. FROM <u>0</u> TO <u>25</u> FT.  |
|                           | <u>NA</u> IN. FROM <u>NA</u> TO <u>NA</u> FT. |
| SURF. CASING DIAMETER:    | <u>↓</u> IN. FROM <u>↓</u> TO <u>↓</u> FT.    |
|                           | <u>↓</u> IN. FROM <u>↓</u> TO <u>↓</u> FT.    |

| WELL DEVELOPMENT                         |                         |
|--|-------------------------|
| DEVELOPMENT METHOD:                      | <u>peristaltic pump</u> |
| TIME DEVELOPING:                         | <u>40</u> HOURS mins    |
| WATER REMOVED:                           | <u>10</u> GALLONS       |
| WATER ADDED:                             | <u>0</u> GALLONS        |
| WATER CLARITY BEFORE / AFTER DEVELOPMENT |                         |
| CLARITY BEFORE:                          | <u>Very Turbid</u>      |
| COLOR BEFORE:                            | <u>gray</u>             |
| CLARITY AFTER:                           | <u>clear</u>            |
| COLOR AFTER:                             | <u>clear</u>            |
| ODOR (IF PRESENT):                       | <u>none</u>             |

| WATER LEVEL SUMMARY    |                    |       |           |
|------------------------|--------------------|-------|-----------|
|                        | MEASUREMENT (FEET) | DATE  | TIME      |
| DTB BEFORE DEVELOPING: | <u>NA</u>          | T/PVC | <u>NA</u> |
| DTB AFTER DEVELOPING:  | <u>↓</u>           | T/PVC | <u>↓</u>  |
| SWE BEFORE DEVELOPING: | <u>↓</u>           | T/PVC | <u>↓</u>  |
| SWE AFTER DEVELOPING:  | <u>↓</u>           | T/PVC | <u>↓</u>  |
| OTHER SWE:             | <u>↓</u>           | T/PVC | <u>↓</u>  |
| OTHER SWE:             | <u>↓</u>           | T/PVC | <u>↓</u>  |

| PROTECTIVE CASING DETAILS            |   |
|--------------------------------------|---|
| PERMANENT, LEGIBLE WELL LABEL ADDED? | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| PROTECTIVE COVER AND LOCK INSTALLED? | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |
| LOCK KEY NUMBER:                     | <u>                    </u>   |





### LOG OF SOIL BORING

|   |   |
|---|---|
| PROJECT NAME: DTE RRPP In Situ test for As GW Remed | SOIL BORING ID: <del>FW</del> PT-TW-04    |
| PROJECT NUMBER: 495769.0000.0000                    | LOCATION: East of MW-16-01<br>7' South 1' |
| LOGGED BY: Jake Krenz                               | SHEET 1 OF 3                              |
| PROJECT LOCATION: 1 Belanger Park Drive             | SURFACE ELEV.: NA                         |
| DRILLED BY: <i>Job Site Services</i>                | DRILLER NAME: Lou Dinnan                  |
|   | DATE STARTED: 10-6-22                     |
|   | DATE COMPLETED: 10-6-22                   |

| NO | TYPE | %  | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS   | COMMENT |
|----|------|----|-------|-----|-------|--|---------|
|    |      |    |       |     | 1     | <del>gravel</del> sandy gravel, no gravel, some fine med sand gray (10 YR 5/1), Dry, loose |         |
| 1  | DP   | 80 | NA    | NM  | 2     |  |         |
|    |      |    |       |     | 3     | Sand w/ clay, no med sand, few clay, Tr-few gravel, Brown (10 YR 5/1), Dry, med dense.     |         |
|    |      |    |       |     | 4     |  |         |
|    |      |    |       |     | 5     |  |         |
|    |      |    |       |     | 6     | SAT @ 0-2.5'   |         |
|    |      |    |       |     | 7     | Coal ash, black wet, loose, odor present   |         |
| 2  | DP   | 60 | NA    | NM  | 8     |  |         |
|    |      |    |       |     | 9     | Silty clay, no clay few-little silt, med plast, gray (10 YR 5/1), moist, soft,             |         |
|    |      |    |       |     | 10    |  |         |

|  |
|--|
| DRILLING METHOD:<br><i>Direct Push</i> |
| DRILL RIG:<br><i>Geoprobe 7822 DT</i>  |
| BORING DIAMETER:<br><i>3"</i>          |

| WATER LEVEL OBSERVATIONS |      |                |                 |
|--------------------------|------|----------------|-----------------|
| FIRST OCCURRENCE: 15'    |      |                |                 |
| DATE                     | TIME | DEPTH TO WATER | DEPTH TO BOTTOM |
|                          |      |                |                 |
|                          |      |                |                 |

SIGNED: *Jul King* DATE: 10-14-22

CHECKED: *LS* DATE: 10/26/22



**LOG OF SOIL BORING**

|   |                          |                         |
|---|--------------------------|-------------------------|
| PROJECT NAME: DTE RRRP In Situ test for As GW Remed | SOIL BORING ID: PT-TW-04 |                         |
| PROJECT NUMBER: 495769.0000.0000                    | LOCATION: See P41        | SHEET 2 OF 3            |
| LOGGED BY: Jake Krenz                               |                          | SURFACE ELEV: NA        |
| PROJECT LOCATION: 1 Belanger Park Drive             | N ————— E —————          | DATE STARTED: 10-6-22   |
| DRILLED BY: Job site Service                        | DRILLER NAME: Lou Dinnan | DATE COMPLETED: 10-6-22 |

| NO | TYPE | %   | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS  | COMMENT |
|----|------|-----|-------|-----|-------|---|---------|
|    |      |     |       |     |       | SAA @ 7.5'  |         |
|    |      |     |       |     | 11    |   |         |
| 3  | DP   | 90  | NA    | NM  | 12    |   |         |
|    |      |     |       |     | 13    |   |         |
|    |      |     |       |     | 14    | <del>Silty clay w/sand, no clay, little <del>some</del> silt,</del><br>few-little fn sand, med plast, gray (10% S/L),<br>moist, soft. |         |
|    |      |     |       |     | 15    | Silty Sand, med fn sand, little-some silt,<br>gray (10% S/L), wet, loose.   |         |
|    |      |     |       |     | 16    |   |         |
| 4  | DP   | 100 | NA    | NM  | 17    |   |         |
|    |      |     |       |     | 18    |   |         |
|    |      |     |       |     | 19    |   |         |
|    |      |     |       |     | 20    |   |         |

|                                |
|--------------------------------|
| DRILLING METHOD<br>Direct Push |
| DRILL RIG<br>Geoprobe 7822 DT  |
| BORING DIAMETER<br>3"          |

| WATER LEVEL OBSERVATIONS |      |                |                 |
|--------------------------|------|----------------|-----------------|
| FIRST OCCURRENCE: 15'    |      |                |                 |
| DATE                     | TIME | DEPTH TO WATER | DEPTH TO BOTTOM |
|                          |      |                |                 |
|                          |      |                |                 |

SIGNATURE: *Jel My* DATE: 10-14-22

CHECKED: MS DATE: 10/26/22





**LOG OF SOIL BORING**

|                  |                                       |                 |          |
|------------------|---------------------------------------|-----------------|----------|
| PROJECT NAME     | DTE RRPP In Situ test for As GW Remed | SOIL BORING ID: | PT-7W-04 |
| PROJECT NUMBER   | 495769.0000 0000                      | LOCATION        | See pg 1 |
| LOGGED BY:       | Jake Krenz                            | SHEET           | 3 OF 3   |
| PROJECT LOCATION | 1 Belanger Park Drive                 | SURFACE ELEV:   | NA       |
| DRILLED BY:      | Job Site Services                     | DATE STARTED:   | 10-6-22  |
| DRILLER NAME:    | Low Dinnan                            | DATE COMPLETED: | 10-6-22  |

| NO | TYPE | %   | BLOWS | PID | DEPTH | VISUAL CLASSIFICATION AND OBSERVATIONS  | COMMENT          |
|----|------|-----|-------|-----|-------|---|------------------|
|    |      |     |       |     |       | SAA @ 15.0'   |                  |
|    |      |     |       |     | 21    |   |                  |
| 5  | DP   | 100 | NA    | NM  | 22    |   |                  |
|    |      |     |       |     | 23    |   |                  |
|    |      |     |       |     | 24    | Silty clay, no clay, some silt, med-high plast, gray (10YR 5/1), <del>wet</del> , moist, soft-med dense | Temp we screened |
|    |      |     |       |     | 25    | gravel, no gravel, few - little med-cr sand, gray 10YR (5/1) wet, loose.                                | 20.5 - 25.5      |
| 6  | DP   | 100 | NA    | NM  | 26    | clay, no clay, few silt, med plast, gray 10YR 5/1 moist, soft.  |                  |
|    |      |     |       |     | 27    |   |                  |
|    |      |     |       |     |       | End @ 27.0' BGS   |                  |

|                 |                  |
|-----------------|------------------|
| DRILLING METHOD | Direct Push      |
| DRILL RIG       | Geoprobe 7822 DT |
| BORING DIAMETER | 3"               |

| WATER LEVEL OBSERVATIONS |      |                |                 |
|--------------------------|------|----------------|-----------------|
| FIRST OCCURRENCE:        |      |                |                 |
| DATE                     | TIME | DEPTH TO WATER | DEPTH TO BOTTOM |
|                          |      | 15'            |                 |
|                          |      |                |                 |
|                          |      |                |                 |

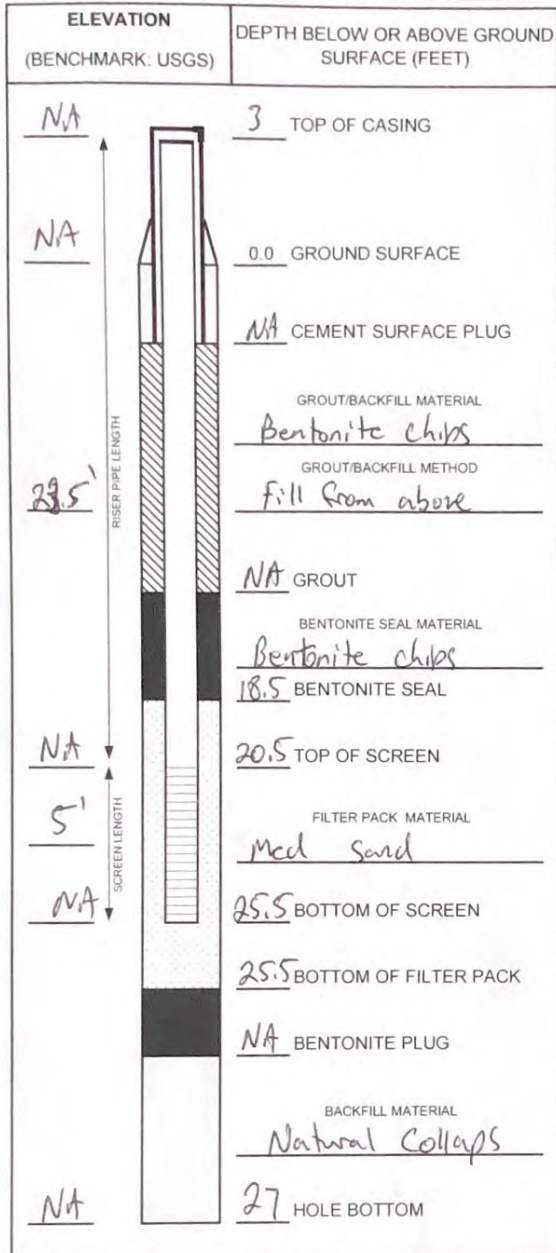
SIGNED: jl King DATE: 10-14-22

CHECKED: MS DATE: 10/26/22



### WELL CONSTRUCTION DIAGRAM

|   |                                |
|---|--------------------------------|
| PROJ. NAME: DTE RRPP In Situ test for As GW Remed | WELL ID: <u>DT-TW-04</u>       |
| PROJ. NO: 495769.0000.0                           | DATE INSTALLED: _____          |
| INSTALLED BY: Jake Krenz                          | CHECKED BY: <u>HS 10/16/27</u> |



NOTES:  
Temporary well

#### CASING AND SCREEN DETAILS

TYPE OF RISER: 1" PVC

PIPE SCHEDULE: 40

PIPE JOINTS: Threaded O-ring

SOLVENT USED?: None

SCREEN TYPE: 1" PVC

SCR. SLOT SIZE: 0.10"

BOREHOLE DIAMETER: 3" IN. FROM 0 TO 27 FT.  
NA IN. FROM NA TO NA FT.

SURF. CASING DIAMETER: ↓ IN. FROM ↓ TO ↓ FT.  
↓ IN. FROM ↓ TO ↓ FT.

#### WELL DEVELOPMENT

DEVELOPMENT METHOD: peristaltic pump

TIME DEVELOPING: 30 HOURS/mins

WATER REMOVED: 8 GALLONS

WATER ADDED: 0 GALLONS

WATER CLARITY BEFORE / AFTER DEVELOPMENT

CLARITY BEFORE: Very Turbid

COLOR BEFORE: gray

CLARITY AFTER: clear

COLOR AFTER: clear

ODOR (IF PRESENT): none

#### WATER LEVEL SUMMARY

|                        | MEASUREMENT (FEET) |       | DATE      | TIME      |
|------------------------|--------------------|-------|-----------|-----------|
|                        | DTB                | SWE   |           |           |
| DTB BEFORE DEVELOPING: | <u>NM</u>          | T/PVC | <u>NA</u> | <u>NA</u> |
| DTB AFTER DEVELOPING:  | ↓                  | T/PVC | ↓         | ↓         |
| SWE BEFORE DEVELOPING: | ↓                  | T/PVC | ↓         | ↓         |
| SWE AFTER DEVELOPING:  | ↓                  | T/PVC | ↓         | ↓         |
| OTHER SWE:             | ↓                  | T/PVC | ↓         | ↓         |
| OTHER SWE:             | ↓                  | T/PVC | ↓         | ↓         |

#### PROTECTIVE CASING DETAILS

PERMANENT, LEGIBLE WELL LABEL ADDED?  YES  NO

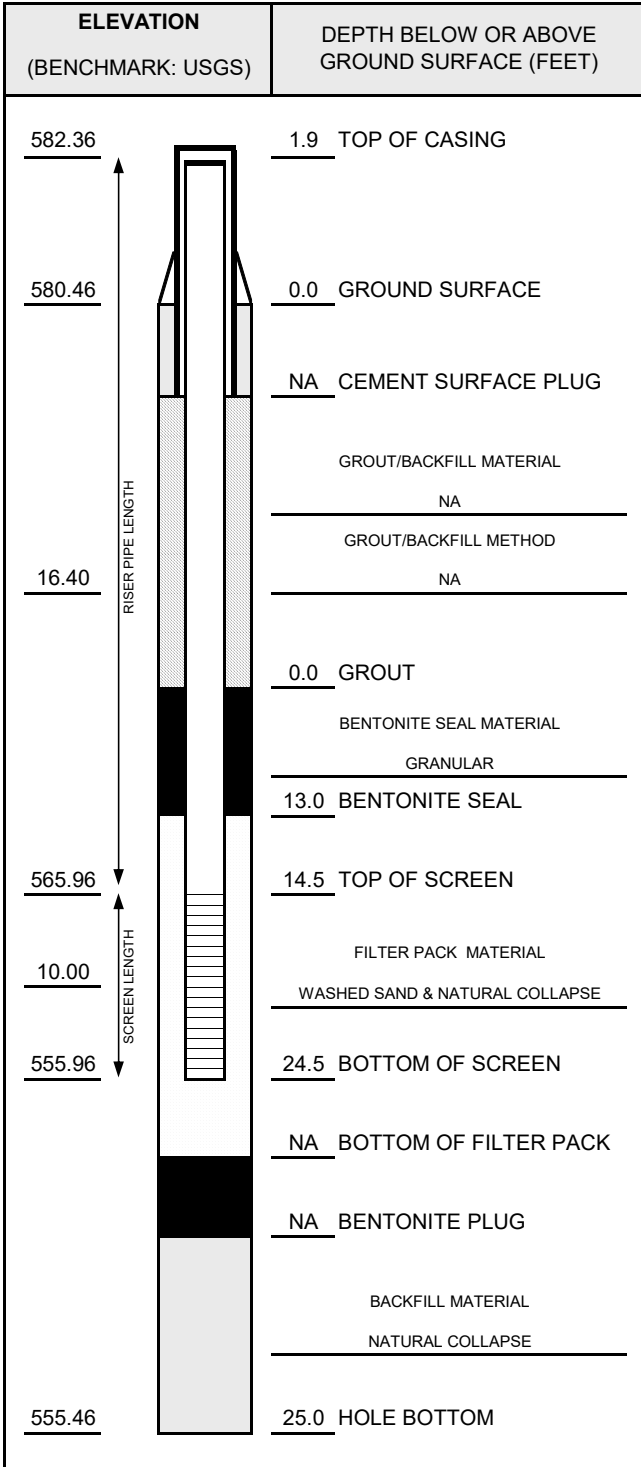
PROTECTIVE COVER AND LOCK INSTALLED?  YES  NO

LOCK KEY NUMBER: \_\_\_\_\_



# WELL CONSTRUCTION DIAGRAM

|  |   |
|--|---|
| PROJ. NAME: River Rouge Power Plant Pilot Test | WELL ID: <b>PT-TW-03R</b>                                   |
| PROJ. NO: 495769.0000                          | DATE INSTALLED: 11.21.2022 INSTALLED BY: Redox Technologies |
| CHECKED BY: B. Yelen                           |   |



| CASING AND SCREEN DETAILS |  |
|---------------------------|--|
| TYPE OF RISER:            | <u>1-INCH PVC</u>  |
| PIPE SCHEDULE:            | <u>40</u>  |
| PIPE JOINTS:              | <u>THREADED O-RINGS</u>  |
| SCREEN TYPE:              | <u>1-INCH PVC</u>  |
| SCR. SLOT SIZE:           | <u>0.01-INCH</u>   |
| BOREHOLE DIAMETER:        | <u>2.5</u> IN. FROM <u>0</u> TO <u>25</u> FT.<br><u>      </u> IN. FROM <u>      </u> TO <u>      </u> FT.             |
| SURF. CASING DIAMETER:    | <u>      </u> IN. FROM <u>      </u> TO <u>      </u> FT.<br><u>      </u> IN. FROM <u>      </u> TO <u>      </u> FT. |

| WELL DEVELOPMENT                         |                       |
|--|-----------------------|
| DEVELOPMENT METHOD:                      | <u>SURGE AND PUMP</u> |
| TIME DEVELOPING:                         | <u>1</u> HOURS        |
| WATER REMOVED:                           | <u>15</u> GALLONS     |
| WATER ADDED:                             | <u>0</u> GALLONS      |
| WATER CLARITY BEFORE / AFTER DEVELOPMENT |                       |
| CLARITY BEFORE:                          | <u>Very turbid</u>    |
| COLOR BEFORE:                            | <u>Gray</u>           |
| CLARITY AFTER:                           | <u>Clear</u>          |
| COLOR AFTER:                             | <u>Clear</u>          |
| ODOR (IF PRESENT):                       | <u>NA</u>             |

| WATER LEVEL SUMMARY    |    |       |      |
|------------------------|----|-------|------|
| MEASUREMENT (FEET)     |    | DATE  | TIME |
| DTB BEFORE DEVELOPING: | NM | T/PVC |      |
| DTB AFTER DEVELOPING:  | NM | T/PVC |      |
| SWL BEFORE DEVELOPING: | NM | T/PVC |      |
| SWL AFTER DEVELOPING:  | NM | T/PVC |      |
| OTHER SWL:             |    | T/PVC |      |
| OTHER SWL:             |    | T/PVC |      |

| PROTECTIVE CASING DETAILS            |   |
|--------------------------------------|---|
| PERMANENT, LEGIBLE WELL LABEL ADDED? | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| PROTECTIVE COVER AND LOCK INSTALLED? | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |
| LOCK KEY NUMBER:                     | <u>NA</u>   |

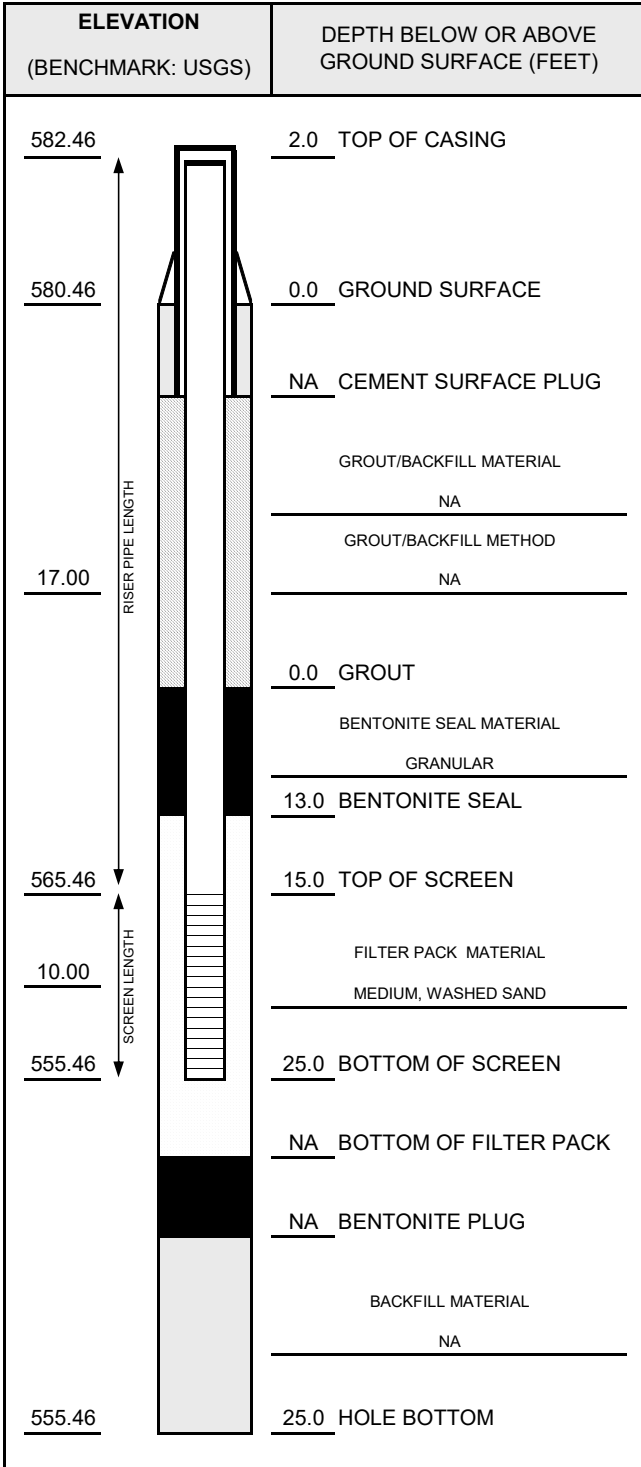
NOTES:  
Ground elevation estimated from MW-16-01.





# WELL CONSTRUCTION DIAGRAM

|  |   |
|--|---|
| PROJ. NAME: River Rouge Power Plant Pilot Test | WELL ID: <b>PT-TW-04R</b>                                   |
| PROJ. NO: 495769.0000                          | DATE INSTALLED: 11.21.2022 INSTALLED BY: Redox Technologies |
| CHECKED BY: B. Yelen                           |   |



| CASING AND SCREEN DETAILS |  |
|---------------------------|--|
| TYPE OF RISER:            | <u>1-INCH PVC</u>  |
| PIPE SCHEDULE:            | <u>40</u>  |
| PIPE JOINTS:              | <u>THREADED O-RINGS</u>  |
| SCREEN TYPE:              | <u>1-INCH PVC</u>  |
| SCR. SLOT SIZE:           | <u>0.01-INCH</u>   |
| BOREHOLE DIAMETER:        | <u>2.5</u> IN. FROM <u>0</u> TO <u>25</u> FT.<br><u>      </u> IN. FROM <u>      </u> TO <u>      </u> FT.             |
| SURF. CASING DIAMETER:    | <u>      </u> IN. FROM <u>      </u> TO <u>      </u> FT.<br><u>      </u> IN. FROM <u>      </u> TO <u>      </u> FT. |

| WELL DEVELOPMENT                         |                       |
|--|-----------------------|
| DEVELOPMENT METHOD:                      | <u>SURGE AND PUMP</u> |
| TIME DEVELOPING:                         | <u>1</u> HOURS        |
| WATER REMOVED:                           | <u>15</u> GALLONS     |
| WATER ADDED:                             | <u>0</u> GALLONS      |
| WATER CLARITY BEFORE / AFTER DEVELOPMENT |                       |
| CLARITY BEFORE:                          | <u>Very turbid</u>    |
| COLOR BEFORE:                            | <u>Gray</u>           |
| CLARITY AFTER:                           | <u>Clear</u>          |
| COLOR AFTER:                             | <u>Clear</u>          |
| ODOR (IF PRESENT):                       | <u>NA</u>             |

| WATER LEVEL SUMMARY    |          |      |      |
|------------------------|----------|------|------|
| MEASUREMENT (FEET)     |          | DATE | TIME |
| DTB BEFORE DEVELOPING: | NM T/PVC |      |      |
| DTB AFTER DEVELOPING:  | NM T/PVC |      |      |
| SWL BEFORE DEVELOPING: | NM T/PVC |      |      |
| SWL AFTER DEVELOPING:  | NM T/PVC |      |      |
| OTHER SWL:             | T/PVC    |      |      |
| OTHER SWL:             | T/PVC    |      |      |

| PROTECTIVE CASING DETAILS            |   |
|--------------------------------------|---|
| PERMANENT, LEGIBLE WELL LABEL ADDED? | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| PROTECTIVE COVER AND LOCK INSTALLED? | <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |
| LOCK KEY NUMBER:                     | <u>NA</u>   |

NOTES:  
Ground elevation estimated from MW-16-01.



# **Attachment 4**

## **Laboratory Reports**



Report ID: S41413.01(02)+QC01  
Generated on 10/19/2022  
Replaces report S41413.01(01) generated on 10/18/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108  
  
Phone: n/a FAX:  
Email: SMarkesic@trccompanies.com

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)

Additional Contacts: Vince Buening

Report Summary

Lab Sample ID(s): S41413.01-S41413.11  
Project: River Rouge Pilot Test  
Collected Date(s): 10/12/2022 - 10/13/2022  
Submitted Date/Time: 10/14/2022 12:30  
Sampled by: B. Yelen  
P.O. #: 188112

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- Laboratory Certifications (Page 3)
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- Glossary of Abbreviations (Page 3)
- Method Summary (Page 4)
- Sample Summary (Page 5)
- QC Report (Pages 17-36)

Maya Murshak  
Technical Director



## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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Added analyses completed



Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                                 |



## Method Summary

| Method           | Version   |
|------------------|---|
| E200.8           | EPA Method 200.8 Revision 5.4                     |
| E245.1           | EPA Method 245.1 Revision 3.0                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



## Sample Summary (11 samples)

| Sample ID | Sample Tag    | Matrix      | Collected Date/Time |
|-----------|---------------|-------------|---------------------|
| S41413.01 | MW-16-01      | Groundwater | 10/12/22 09:55      |
| S41413.02 | PT-TW-01      | Groundwater | 10/12/22 11:25      |
| S41413.03 | PT-TW-03      | Groundwater | 10/12/22 13:50      |
| S41413.04 | PT-TW-04      | Groundwater | 10/12/22 15:55      |
| S41413.05 | MW-17-17      | Groundwater | 10/13/22 09:05      |
| S41413.06 | MW-17-16      | Groundwater | 10/13/22 09:35      |
| S41413.07 | MW-17-14      | Groundwater | 10/13/22 11:15      |
| S41413.08 | MW-17-15      | Groundwater | 10/13/22 12:05      |
| S41413.09 | PT-TW-02      | Groundwater | 10/13/22 15:00      |
| S41413.10 | Potable Water | Water       | 10/13/22 14:00      |
| S41413.11 | DUP-01        | Groundwater | 10/13/22 00:01      |



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.01

Sample Tag: MW-16-01

Collected Date/Time: 10/12/2022 09:55

Matrix: Groundwater

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass    | HCL             | Yes           | 5.2               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/18/22 08:41, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 10/17/22 13:35, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 2.35   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/17/22 14:45, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.116  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 2.26   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |





Lab Sample ID: S41413.02

Sample Tag: PT-TW-01

Collected Date/Time: 10/12/2022 11:25

Matrix: Groundwater

COC Reference: 151258

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass    | HCL             | Yes           | 5.2               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.2               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 10/18/22 08:54, Analyst: JDP**

| Parameter | Result | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|------|-------|----------|------------|-------|
| Sulfate   | 84     | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 10/17/22 13:45, Analyst: JKB**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.75   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 10/17/22 14:47, Analyst: CCM**

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.010  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 1.96   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



Lab Sample ID: S41413.03

Sample Tag: PT-TW-03

Collected Date/Time: 10/12/2022 13:50

Matrix: Groundwater

COC Reference: 151258

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass    | HCL             | Yes           | 5.2               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.2               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 10/18/22 09:07, Analyst: JDP**

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 10/17/22 13:55, Analyst: JKB**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.50   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 10/17/22 14:49, Analyst: CCM**

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.023  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 1.50   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.04

Sample Tag: PT-TW-04

Collected Date/Time: 10/12/2022 15:55

Matrix: Groundwater

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass    | HCL             | Yes           | 5.2               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/18/22 09:20, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 10/17/22 14:00, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.80   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/17/22 14:51, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.103  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 1.74   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



**Lab Sample ID: S41413.05**

Sample Tag: MW-17-17

Collected Date/Time: 10/13/2022 09:05

Matrix: Groundwater

COC Reference: 151258

**Sample Containers**

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

**Metals**

**Method: E200.8, Run Date: 10/17/22 14:04, Analyst: CCM**

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.012        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.06

Sample Tag: MW-17-16

Collected Date/Time: 10/13/2022 09:35

Matrix: Groundwater

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

### Metals

Method: E200.8, Run Date: 10/17/22 14:07, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.106  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.042  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.07

Sample Tag: MW-17-14

Collected Date/Time: 10/13/2022 11:15

Matrix: Groundwater

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

### Metals

Method: E200.8, Run Date: 10/17/22 14:10, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.003  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.017  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.08

Sample Tag: MW-17-15

Collected Date/Time: 10/13/2022 12:05

Matrix: Groundwater

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

### Metals

Method: E200.8, Run Date: 10/17/22 14:12, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.012  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.028  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.09

Sample Tag: PT-TW-02

Collected Date/Time: 10/13/2022 15:00

Matrix: Groundwater

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass    | HCL             | Yes           | 5.2               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/18/22 09:32, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 10/17/22 14:05, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.70   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/17/22 14:53, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.003  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 0.67   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |





# Analytical Laboratory Report

Supplemental Report

Lab Sample ID: S41413.10

Sample Tag: Potable Water

Collected Date/Time: 10/13/2022 14:00

Matrix: Water

COC Reference: 151258

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 10/18/22 11:58 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 10/17/22 10:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 10/17/22 11:10, Analyst: CCM

| 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     | 0.015        | 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 |       |
| Lead       | 0.005        | 0.003  |     | mg/L  | 5        | 7439-92-1 |       |
| Lithium*   | Not detected | 0.005  |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 5        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 5        | 7440-28-0 |       |

Method: E245.1, Run Date: 10/18/22 14:17, Analyst: CTV

| Parameter | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|--------|-----|-------|----------|-----------|-------|
| Mercury   | Not detected | 0.0002 |     | mg/L  | 1        | 7439-97-6 |       |



**Lab Sample ID: S41413.11**

Sample Tag: DUP-01

Collected Date/Time: 10/13/2022 00:01

Matrix: Groundwater

COC Reference: 151258

**Sample Containers**

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 3 | 40ml Glass    | HCL             | Yes           | 5.2               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.2               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.2               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/17/22 12:10 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 10/18/22 09:45, Analyst: JDP**

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 10/17/22 14:10, Analyst: JKB**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.75   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 10/17/22 14:25, Analyst: CCM**

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.003  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 0.65   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Quality Control Report

Report ID: S41413.01(02)+QC01

Generated on 10/18/2022

Report to

Attention: S. Markesic

TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: n/a FAX:

Report Produced by

Merit Laboratories

2680 East Lansing Drive

East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S41413.01-S41413.11

Project: River Rouge Pilot Test

Submitted Date/Time: 10/14/2022 12:30

Sampled by: B. Yelen

P.O. #: 188112

QC Report Sections

Cover Page (Page 17)

Analysis Summary (Pages 18-28)

Prep Batch Summary (Pages 29-30)

Batch QC Results (Pages 31-36)

Report Flag Descriptions

\*: QC result is outside of indicated control limits

W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball

Quality Assurance Manager

## QC Report - Analysis Summary

**Lab Sample ID: S41413.01**

Sample Tag: MW-16-01

Collected Date/Time: 10/12/2022 09:55

Matrix: Groundwater

COC Reference: 151258

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 10/17/22 13:35 | FEI221017-W2   | FEI221017-W2   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/18/22 08:41 | SFT221018-W1-B | SFT221018-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/17/22 14:45 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/17/22 14:45 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S41413.02**

Sample Tag: PT-TW-01

Collected Date/Time: 10/12/2022 11:25

Matrix: Groundwater

COC Reference: 151258

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 10/17/22 13:45 | FEI221017-W2   | FEI221017-W2   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/18/22 08:54 | SFT221018-W1-B | SFT221018-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/17/22 14:47 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/17/22 14:47 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S41413.03**

Sample Tag: PT-TW-03

Collected Date/Time: 10/12/2022 13:50

Matrix: Groundwater

COC Reference: 151258

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 10/17/22 13:55 | FEI221017-W2   | FEI221017-W2   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/18/22 09:07 | SFT221018-W1-B | SFT221018-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/17/22 14:49 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/17/22 14:49 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S41413.04**

Sample Tag: PT-TW-04

Collected Date/Time: 10/12/2022 15:55

Matrix: Groundwater

COC Reference: 151258

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 10/17/22 14:00 | FEI221017-W2   | FEI221017-W2   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/18/22 09:20 | SFT221018-W1-B | SFT221018-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/17/22 14:51 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/17/22 14:51 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S41413.05

Sample Tag: MW-17-17

Collected Date/Time: 10/13/2022 09:05

Matrix: Groundwater

COC Reference: 151258

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 10/17/22 14:04 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/17/22 14:04 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |



# QC Report - Analysis Summary

Lab Sample ID: S41413.06

Sample Tag: MW-17-16

Collected Date/Time: 10/13/2022 09:35

Matrix: Groundwater

COC Reference: 151258

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 10/17/22 14:07 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/17/22 14:07 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S41413.07

Sample Tag: MW-17-14

Collected Date/Time: 10/13/2022 11:15

Matrix: Groundwater

COC Reference: 151258

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 10/17/22 14:10 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/17/22 14:10 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S41413.08

Sample Tag: MW-17-15

Collected Date/Time: 10/13/2022 12:05

Matrix: Groundwater

COC Reference: 151258

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 10/17/22 14:12 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/17/22 14:12 | MT4-22-1017B | MTD-101722-4 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

**Lab Sample ID: S41413.09**

Sample Tag: PT-TW-02

Collected Date/Time: 10/13/2022 15:00

Matrix: Groundwater

COC Reference: 151258

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 10/17/22 14:05 | FEI221017-W2   | FEI221017-W2   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/18/22 09:32 | SFT221018-W1-B | SFT221018-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/17/22 14:53 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/17/22 14:53 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S41413.10**

Sample Tag: Potable Water

Collected Date/Time: 10/13/2022 14:00

Matrix: Water

COC Reference: 151258

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Antimony      | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Barium        | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Beryllium     | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Cadmium       | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Chromium      | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Cobalt        | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Lead          | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Mercury       | E245.1 | 10/18/22 14:17 | HG-22-1018A  | HGD-101822-1 | No   | BLK/LCS/MS/MSD |
| Molybdenum    | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Selenium      | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |
| Thallium      | E200.8 | 10/17/22 11:10 | MT4-22-1017A | MTD-101722-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S41413.11

Sample Tag: DUP-01

Collected Date/Time: 10/13/2022 00:01

Matrix: Groundwater

COC Reference: 151258

| Analysis                | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|-------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b>Inorganics</b>       |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 14:10 | FEI221017-W2   | FEI221017-W2   | No   | BLK/LCS/MS/DUP    |
| Sulfate                 | E300.0            | 10/18/22 09:45 | SFT221018-W1-B | SFT221018-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b>Metals</b>           |                   |                |                |                |      |                   |
| Arsenic                 | E200.8            | 10/17/22 14:25 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |
| Iron                    | E200.8            | 10/17/22 14:25 | MT4-22-1017B   | MTD-101722-4   | No   | BLK/LCS/MS/MSD    |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI221017-W2

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method            | Run Date/Time  | Batch ID     |
|-----------|-------------------------|-------------------|----------------|--------------|
| S41413.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 13:35 | FEI221017-W2 |
| S41413.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 13:45 | FEI221017-W2 |
| S41413.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 13:55 | FEI221017-W2 |
| S41413.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 14:00 | FEI221017-W2 |
| S41413.09 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 14:05 | FEI221017-W2 |
| S41413.11 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 10/17/22 14:10 | FEI221017-W2 |

### Inorganics, Prep Batch ID: SFT221018-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S41413.01 | Sulfate  | E300.0 | 10/18/22 08:41 | SFT221018-W1-B |
| S41413.02 | Sulfate  | E300.0 | 10/18/22 08:54 | SFT221018-W1-B |
| S41413.03 | Sulfate  | E300.0 | 10/18/22 09:07 | SFT221018-W1-B |
| S41413.04 | Sulfate  | E300.0 | 10/18/22 09:20 | SFT221018-W1-B |
| S41413.09 | Sulfate  | E300.0 | 10/18/22 09:32 | SFT221018-W1-B |
| S41413.11 | Sulfate  | E300.0 | 10/18/22 09:45 | SFT221018-W1-B |

### Metals, Prep Batch ID: HGD-101822-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID    |
|-----------|----------|--------|----------------|-------------|
| S41413.10 | Mercury  | E245.1 | 10/18/22 14:17 | HG-22-1018A |

### Metals, Prep Batch ID: MTD-101722-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S41413.10 | Antimony   | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Barium     | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Beryllium  | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Cadmium    | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Chromium   | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Cobalt     | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Lead       | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Lithium    | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Molybdenum | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Selenium   | E200.8 | 10/17/22 11:10 | MT4-22-1017A |
| S41413.10 | Thallium   | E200.8 | 10/17/22 11:10 | MT4-22-1017A |

### Metals, Prep Batch ID: MTD-101722-4

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S41413.01 | Arsenic  | E200.8 | 10/17/22 14:45 | MT4-22-1017B |
| S41413.01 | Iron     | E200.8 | 10/17/22 14:45 | MT4-22-1017B |
| S41413.02 | Arsenic  | E200.8 | 10/17/22 14:47 | MT4-22-1017B |
| S41413.02 | Iron     | E200.8 | 10/17/22 14:47 | MT4-22-1017B |
| S41413.03 | Arsenic  | E200.8 | 10/17/22 14:49 | MT4-22-1017B |
| S41413.03 | Iron     | E200.8 | 10/17/22 14:49 | MT4-22-1017B |
| S41413.04 | Arsenic  | E200.8 | 10/17/22 14:51 | MT4-22-1017B |
| S41413.04 | Iron     | E200.8 | 10/17/22 14:51 | MT4-22-1017B |
| S41413.05 | Arsenic  | E200.8 | 10/17/22 14:04 | MT4-22-1017B |
| S41413.05 | Lithium  | E200.8 | 10/17/22 14:04 | MT4-22-1017B |

# QC Report - Prep Batch Summary

## Metals, Prep Batch ID: MTD-101722-4 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S41413.06 | Arsenic  | E200.8 | 10/17/22 14:07 | MT4-22-1017B |
| S41413.06 | Lithium  | E200.8 | 10/17/22 14:07 | MT4-22-1017B |
| S41413.07 | Arsenic  | E200.8 | 10/17/22 14:10 | MT4-22-1017B |
| S41413.07 | Lithium  | E200.8 | 10/17/22 14:10 | MT4-22-1017B |
| S41413.08 | Arsenic  | E200.8 | 10/17/22 14:12 | MT4-22-1017B |
| S41413.08 | Lithium  | E200.8 | 10/17/22 14:12 | MT4-22-1017B |
| S41413.09 | Arsenic  | E200.8 | 10/17/22 14:53 | MT4-22-1017B |
| S41413.09 | Iron     | E200.8 | 10/17/22 14:53 | MT4-22-1017B |
| S41413.11 | Arsenic  | E200.8 | 10/17/22 14:25 | MT4-22-1017B |
| S41413.11 | Iron     | E200.8 | 10/17/22 14:25 | MT4-22-1017B |



# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI221017-W2

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI221017-W2.LRB1

Run in Batch: FEI221017-W2, Run Date: 10/17/2022 13:15, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI221017-W2.LCS1

Run in Batch: FEI221017-W2, Run Date: 10/17/2022 13:30, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 100   | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI221017-W2.MS1, Parent Sample ID: S41413.02

Run in Batch: FEI221017-W2, Run Date: 10/17/2022 13:50, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 110   | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI221017-W2.DP1, Parent Sample ID: S41413.01

Run in Batch: FEI221017-W2, Run Date: 10/17/2022 13:40, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | 2   | 15     |

**QC Report - Batch QC Results**

**Inorganics, Prep Batch ID: SFT221018-W1-B**

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

**Blank (BLK)**

Lab Sample ID: SFT221018-W1-B.LRB1

Run in Batch: SFT221018-W1-B, Run Date: 10/18/2022 07:50, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: SFT221018-W1-B.LCS1

Run in Batch: SFT221018-W1-B, Run Date: 10/18/2022 08:15, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 100   | 90  | 110 |

**Matrix Spike (MS)**

Lab Sample ID: SFT221018-W1-B.MS1, Parent Sample ID: S41413.01

Run in Batch: SFT221018-W1-B, Run Date: 10/18/2022 10:11, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 94    | 80  | 120 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: SFT221018-W1-B.MSD1, Parent Sample ID: SFT221018-W1-B.MS1

Run in Batch: SFT221018-W1-B, Run Date: 10/18/2022 10:24, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 94    | 80  | 120 | 0   | 15     |

**Duplicate (DUP)**

Lab Sample ID: SFT221018-W1-B.DP1, Parent Sample ID: S41413.01

Run in Batch: SFT221018-W1-B, Run Date: 10/18/2022 09:58, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |

# QC Report - Batch QC Results

## Metals, Prep Batch ID: HGD-101822-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

### Blank (BLK)

Lab Sample ID: HG-22-1018A.015.LRB

Run in Batch: HG-22-1018A, Run Date: 10/18/2022 13:02, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Mercury |       | ND   | 0.20 | ug/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: HG-22-1018A.014.LCS

Run in Batch: HG-22-1018A, Run Date: 10/18/2022 13:14, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 98    | 85  | 115 |

### Matrix Spike (MS)

Lab Sample ID: HG-22-1018A.017.MS, Parent Sample ID: S41238.01

Run in Batch: HG-22-1018A, Run Date: 10/18/2022 13:21, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 103   | 80  | 120 |

### Matrix Spike (MS)

Lab Sample ID: HG-22-1018A.032.MS, Parent Sample ID: S41326.01

Run in Batch: HG-22-1018A, Run Date: 10/18/2022 14:10, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 101   | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG-22-1018A.033.MSD, Parent Sample ID: HG-22-1018A.032.MS

Run in Batch: HG-22-1018A, Run Date: 10/18/2022 14:13, Prep Date: 10/18/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 101   | 80  | 120 | 0   | 20     |

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-101722-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Blank (BLK)

Lab Sample ID: MT4-22-1017A.021.LRB

Run in Batch: MT4-22-1017A, Run Date: 10/17/2022 11:07, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | Conc | RDL    | Units |
|------------|-------|------|--------|-------|
| Antimony   |       | ND   | 0.001  | mg/L  |
| Barium     |       | ND   | 0.001  | mg/L  |
| Beryllium  |       | ND   | 0.0002 | mg/L  |
| Cadmium    |       | ND   | 0.0001 | mg/L  |
| Chromium   |       | ND   | 0.001  | mg/L  |
| Cobalt     |       | ND   | 0.001  | mg/L  |
| Lead       |       | ND   | 0.0006 | mg/L  |
| Lithium    |       | ND   | 0.001  | mg/L  |
| Molybdenum |       | ND   | 0.001  | mg/L  |
| Selenium   |       | ND   | 0.001  | mg/L  |
| Thallium   |       | ND   | 0.0004 | mg/L  |

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-22-1017A.019.LCS

Run in Batch: MT4-22-1017A, Run Date: 10/17/2022 11:03, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 104   | 85  | 115 |
| Barium     |       | 99    | 85  | 115 |
| Beryllium  |       | 102   | 85  | 115 |
| Cadmium    |       | 101   | 85  | 115 |
| Chromium   |       | 99    | 85  | 115 |
| Cobalt     |       | 99    | 85  | 115 |
| Lead       |       | 103   | 85  | 115 |
| Lithium    |       | 102   | 85  | 115 |
| Molybdenum |       | 100   | 85  | 115 |
| Selenium   |       | 97    | 85  | 115 |
| Thallium   |       | 101   | 85  | 115 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1017A.041.MS, Parent Sample ID: S41373.02

Run in Batch: MT4-22-1017A, Run Date: 10/17/2022 11:46, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 98    | 75  | 125 |
| Barium     |       | 101   | 75  | 125 |
| Beryllium  |       | 106   | 75  | 125 |
| Cadmium    |       | 102   | 75  | 125 |
| Chromium   |       | 104   | 75  | 125 |
| Cobalt     |       | 103   | 75  | 125 |
| Lead       |       | 102   | 75  | 125 |
| Lithium    |       | 105   | 75  | 125 |
| Molybdenum |       | 100   | 75  | 125 |
| Selenium   |       | 109   | 75  | 125 |
| Thallium   |       | 102   | 75  | 125 |

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-101722-1 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1017A.060.MS, Parent Sample ID: S41402.01

Run in Batch: MT4-22-1017A, Run Date: 10/17/2022 12:17, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 95    | 75  | 125 |
| Barium     |       | 100   | 75  | 125 |
| Beryllium  |       | 104   | 75  | 125 |
| Cadmium    |       | 99    | 75  | 125 |
| Chromium   |       | 101   | 75  | 125 |
| Cobalt     |       | 100   | 75  | 125 |
| Lead       |       | 96    | 75  | 125 |
| Lithium    |       | 103   | 75  | 125 |
| Molybdenum |       | 99    | 75  | 125 |
| Selenium   |       | 103   | 75  | 125 |
| Thallium   |       | 96    | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1017A.042.MSD, Parent Sample ID: MT4-22-1017A.041.MS

Run in Batch: MT4-22-1017A, Run Date: 10/17/2022 11:48, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Antimony   |       | 98    | 75  | 125 | 1   | 20     |
| Barium     |       | 99    | 75  | 125 | 2   | 20     |
| Beryllium  |       | 104   | 75  | 125 | 2   | 20     |
| Cadmium    |       | 102   | 75  | 125 | 0   | 20     |
| Chromium   |       | 102   | 75  | 125 | 2   | 20     |
| Cobalt     |       | 101   | 75  | 125 | 2   | 20     |
| Lead       |       | 102   | 75  | 125 | 0   | 20     |
| Lithium    |       | 103   | 75  | 125 | 2   | 20     |
| Molybdenum |       | 99    | 75  | 125 | 2   | 20     |
| Selenium   |       | 105   | 75  | 125 | 4   | 20     |
| Thallium   |       | 100   | 75  | 125 | 2   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1017A.061.MSD, Parent Sample ID: MT4-22-1017A.060.MS

Run in Batch: MT4-22-1017A, Run Date: 10/17/2022 12:19, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Antimony   |       | 96    | 75  | 125 | 2   | 20     |
| Barium     |       | 99    | 75  | 125 | 0   | 20     |
| Beryllium  |       | 103   | 75  | 125 | 0   | 20     |
| Cadmium    |       | 99    | 75  | 125 | 0   | 20     |
| Chromium   |       | 98    | 75  | 125 | 3   | 20     |
| Cobalt     |       | 100   | 75  | 125 | 0   | 20     |
| Lead       |       | 100   | 75  | 125 | 3   | 20     |
| Lithium    |       | 101   | 75  | 125 | 2   | 20     |
| Molybdenum |       | 98    | 75  | 125 | 0   | 20     |
| Selenium   |       | 100   | 75  | 125 | 3   | 20     |
| Thallium   |       | 100   | 75  | 125 | 4   | 20     |

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-101722-4**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Blank (BLK)**

Lab Sample ID: MT4-22-1017B.018.LRB

Run in Batch: MT4-22-1017B, Run Date: 10/17/2022 13:58, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL   | Units |
|---------|-------|------|-------|-------|
| Arsenic |       | ND   | 0.004 | mg/L  |
| Iron    |       | ND   | 0.004 | mg/L  |
| Lithium |       | ND   | 0.001 | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-22-1017B.017.LCS

Run in Batch: MT4-22-1017B, Run Date: 10/17/2022 13:56, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 99    | 85  | 115 |
| Iron    |       | 99    | 85  | 115 |
| Lithium |       | 103   | 85  | 115 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1017B.039.MS, Parent Sample ID: S41413.11

Run in Batch: MT4-22-1017B, Run Date: 10/17/2022 14:26, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 102   | 75  | 125 |
| Iron    |       | 104   | 75  | 125 |
| Lithium |       | 104   | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1017B.062.MS, Parent Sample ID: S41287.01

Run in Batch: MT4-22-1017B, Run Date: 10/17/2022 14:57, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 104   | 75  | 125 |
| Iron    |       | 111   | 75  | 125 |
| Lithium |       | 100   | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1017B.040.MSD, Parent Sample ID: MT4-22-1017B.039.MS

Run in Batch: MT4-22-1017B, Run Date: 10/17/2022 14:27, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 103   | 75  | 125 | 0   | 20     |
| Iron    |       | 106   | 75  | 125 | 0   | 20     |
| Lithium |       | 102   | 75  | 125 | 2   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1017B.063.MSD, Parent Sample ID: MT4-22-1017B.062.MS

Run in Batch: MT4-22-1017B, Run Date: 10/17/2022 14:58, Prep Date: 10/17/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 104   | 75  | 125 | 0   | 20     |
| Iron    |       | 101   | 75  | 125 | 3   | 20     |
| Lithium |       | 104   | 75  | 125 | 3   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S41413

Client:TRC (TRC)

Project: River Rouge Pilot Test

Submitted: 10/14/2022 12:30 Login User: MMC

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Selection                | Description  | Note   |
|--------------------------|--|--|
| <b>Sample Receiving</b>  |  |  |
| 01.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 5.2 |
| 02.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05.                      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| <b>Chain of Custody</b>  |  |  |
| 06.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                              |
| 07.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab                 |
| 08.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC                        |
| 09.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to:               |
| <b>Preservation</b>      |  |  |
| 10.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation           |
| 11.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs)    |
| 12.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?       |
| <b>Bottle Conditions</b> |  |  |
| 13.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                                     |
| 14.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used                |
| 15.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                                     |
| 16.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received                      |
| 17.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration                  |
| 18.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time                  |
| 19.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace          |

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: S41413 Submitted: 10/14/2022 12:30

Client: TRC (TRC)

Project: River Rouge Pilot Test

Initial Preservation Check: 10/14/2022 13:54 MMC

Preservation Recheck (E200.8): N/A

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S41413.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.06 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.07 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.08 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.09 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.10 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41413.11 | 125ml Plastic HNO3    | <2        |        |          |       |





**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME S. MARKESIC, V. BUENING  
 COMPANY TRC  
 ADDRESS 1540 EISENHOWER PL  
 CITY ANN ARBOR STATE MI ZIP CODE 48108  
 PHONE NO. \_\_\_\_\_ CELL NO. \_\_\_\_\_ P.O. NO. 188112  
 E-MAIL ADDRESS Smarkesic@trccompanies.com vbuening@trccompanies.com QUOTE NO. \_\_\_\_\_

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

PROJECT NO./NAME RIVER FOXE PILOT TEST SAMPLER(S) - PLEASE PRINT/SIGN NAME B. YELEN  
 TURNAROUND TIME REQUIRED  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER \_\_\_\_\_  
 DELIVERABLES REQUIRED  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER TRC EDD

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.<br><small>FOR LAB USE ONLY</small> | COLLECTION |      | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | NONE | HCl | HNO <sub>3</sub> | H <sub>2</sub> SO <sub>4</sub> | NaOH | MeOH | OTHER | SO <sub>4</sub> | FERROUS Fe | TOTAL AS, Fe | TOTAL AS, Li | APP IV METALS * | Certifications | Project Locations | Special Instructions |
|--|------------|------|---------------------------------------|--------|--------------|------|-----|------------------|--------------------------------|------|------|-------|-----------------|------------|--------------|--------------|-----------------|----------------|-------------------|----------------------|
|  | DATE       | TIME |                                       |        |              |      |     |                  |                                |      |      |       |                 |            |              |              |                 |                |                   |                      |
| 41413.01   | 10.12      | 0955 | MW-16-01                              | GW     | 5            | 1    | 3   | 1                |                                |      |      |       | X               | X          | X            |              |                 |                |                   | * App IV TOTAL       |
| .02  |            | 1125 | PT-TW-01                              |        | 5            | 1    | 3   | 1                |                                |      |      |       | X               | X          | X            |              |                 |                |                   | METALS: Sb,          |
| .03  |            | 1350 | PT-TW-03                              |        | 5            | 1    | 3   | 1                |                                |      |      |       | X               | X          | X            |              |                 |                |                   | Ba, Be, Cd, Cr,      |
| .04  |            | 1555 | PT-TW-04                              |        | 5            | 1    | 3   | 1                |                                |      |      |       | X               | X          | X            |              |                 |                |                   | Co, Pb, Li, Hg,      |
| .05  | 10.13      | 0905 | MW-17-17                              |        | 1            |      |     |                  |                                |      |      |       |                 |            |              |              | X               |                |                   | Mo, Se, Th           |
| .06  |            | 0935 | MW-17-16                              |        | 1            |      |     |                  |                                |      |      |       |                 |            |              |              | X               |                |                   |                      |
| .07  |            | 1115 | MW-17-14                              |        | 1            |      |     |                  |                                |      |      |       |                 |            |              |              | X               |                |                   |                      |
| .08  |            | 1205 | MW-17-15                              |        | 1            |      |     |                  |                                |      |      |       |                 |            |              |              | X               |                |                   |                      |
| .09  |            | 1500 | PT-TW-02                              |        | 5            | 1    | 3   | 1                |                                |      |      |       | X               | X          | X            |              |                 |                |                   |                      |
| .10  |            | 1400 | POTABLE WATER                         | W      | 1            |      |     | 1                |                                |      |      |       |                 |            |              |              |                 | X              |                   |                      |
| .11  |            | /    | DUP-01                                | GW     | 5            | 1    | 3   | 1                |                                |      |      |       | X               | X          | X            |              |                 |                |                   |                      |

RELINQUISHED BY: B. YELEN  Sampler DATE 10.14.22 TIME 0700  
 RECEIVED BY: B. YELLEN TRC STOR DATE 10.14.22 TIME 0700  
 RELINQUISHED BY: TRC DATE 10/14/22 TIME 700  
 RECEIVED BY: ISELW DATE 10/14/22 TIME 700

RELINQUISHED BY: ISELW DATE 10/14/22 TIME 1230  
 RECEIVED BY: M. [Signature] DATE 10/14/22 TIME 1230  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 NOTES: TEMP. ON ARRIVAL 5.2



# Analytical Laboratory Report

Report ID: S41944.01(01)+QC01  
Generated on 11/07/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:  
Email: SMarkesic@trccompanies.com

Additional Contacts: Vince Buening

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): S41944.01-S41944.08  
Project: River Rouge Pilot Test  
Collected Date(s): 10/25/2022 - 10/26/2022  
Submitted Date/Time: 10/28/2022 11:00  
Sampled by: B. Yelen  
P.O. #: 188112

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (8 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S41944.01 | MW-16-03   | Groundwater | 10/25/22 11:20      |
| S41944.02 | MW-16-02   | Groundwater | 10/25/22 12:10      |
| S41944.03 | MW-16-01   | Groundwater | 10/25/22 13:25      |
| S41944.04 | DUP-01     | Groundwater | 10/25/22 00:01      |
| S41944.05 | PT-TW-04   | Groundwater | 10/26/22 11:00      |
| S41944.06 | PT-TW-02   | Groundwater | 10/26/22 11:25      |
| S41944.07 | PT-TW-01   | Groundwater | 10/26/22 12:25      |
| S41944.08 | PT-TW-03   | Groundwater | 10/26/22 13:15      |



# Analytical Laboratory Report

Lab Sample ID: S41944.01

Sample Tag: MW-16-03

Collected Date/Time: 10/25/2022 11:20

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:31, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.006        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S41944.02

Sample Tag: MW-16-02

Collected Date/Time: 10/25/2022 12:10

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:47, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.002  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.012  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |





# Analytical Laboratory Report

Lab Sample ID: S41944.03

Sample Tag: MW-16-01

Collected Date/Time: 10/25/2022 13:25

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.9               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/28/22 12:08, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/07/22 11:20, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 2.25   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:15, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.106  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 2.24   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S41944.04

Sample Tag: DUP-01

Collected Date/Time: 10/25/2022 00:01

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.9               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/28/22 12:21, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/07/22 11:30, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 2.25   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:18, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.100  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 2.25   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

**Lab Sample ID: S41944.05**

Sample Tag: PT-TW-04

Collected Date/Time: 10/26/2022 11:00

Matrix: Groundwater

COC Reference: 154811

**Sample Containers**

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.9               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.9               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 10/28/22 12:34, Analyst: JDP**

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 11/07/22 11:40, Analyst: JKB**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.50   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 10/28/22 14:21, Analyst: CCM**

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.089  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 1.55   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S41944.06

Sample Tag: PT-TW-02

Collected Date/Time: 10/26/2022 11:25

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.9               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/28/22 12:47, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/07/22 11:45, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.70   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:23, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.003  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 0.70   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S41944.07

Sample Tag: PT-TW-01

Collected Date/Time: 10/26/2022 12:25

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.9               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/28/22 12:59, Analyst: JDP

| Parameter | Result | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|------|-------|----------|------------|-------|
| Sulfate   | 80     | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/07/22 11:50, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.70   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:26, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.011  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 0.80   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S41944.08

Sample Tag: PT-TW-03

Collected Date/Time: 10/26/2022 13:15

Matrix: Groundwater

COC Reference: 154811

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.9               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.9               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.9               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 10/28/22 12:50 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 10/28/22 13:12, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/07/22 11:55, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.0    | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 10/28/22 14:28, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.029  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 0.91   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Quality Control Report

Report ID: S41944.01(01)+QC01  
Generated on 11/07/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:

Report Produced by

Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S41944.01-S41944.08  
Project: River Rouge Pilot Test  
Submitted Date/Time: 10/28/2022 11:00  
Sampled by: B. Yelen  
P.O. #: 188112

QC Report Sections

Cover Page (Page 14)  
Analysis Summary (Pages 15-22)  
Prep Batch Summary (Page 23)  
Batch QC Results (Pages 24-26)

Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

# QC Report - Analysis Summary

Lab Sample ID: S41944.01

Sample Tag: MW-16-03

Collected Date/Time: 10/25/2022 11:20

Matrix: Groundwater

COC Reference: 154811

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 10/28/22 14:31 | MT4-22-1028A | MTD-102822-3 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/28/22 14:31 | MT4-22-1028A | MTD-102822-3 | No   | BLK/LCS/MS/MSD |



# QC Report - Analysis Summary

Lab Sample ID: S41944.02

Sample Tag: MW-16-02

Collected Date/Time: 10/25/2022 12:10

Matrix: Groundwater

COC Reference: 154811

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 10/28/22 14:47 | MT4-22-1028A | MTD-102822-3 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 10/28/22 14:47 | MT4-22-1028A | MTD-102822-3 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

**Lab Sample ID: S41944.03**

Sample Tag: MW-16-01

Collected Date/Time: 10/25/2022 13:25

Matrix: Groundwater

COC Reference: 154811

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 10/27/22 11:20 | FEI221107-W1   | FEI221107-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/28/22 12:08 | SFT221028-W1-B | SFT221028-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/28/22 14:15 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/28/22 14:15 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S41944.04

Sample Tag: DUP-01

Collected Date/Time: 10/25/2022 00:01

Matrix: Groundwater

COC Reference: 154811

| Analysis                | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|-------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b>Inorganics</b>       |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:30 | FEI221107-W1   | FEI221107-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                 | E300.0            | 10/28/22 12:21 | SFT221028-W1-B | SFT221028-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b>Metals</b>           |                   |                |                |                |      |                   |
| Arsenic                 | E200.8            | 10/28/22 14:18 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |
| Iron                    | E200.8            | 10/28/22 14:18 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |

## QC Report - Analysis Summary

**Lab Sample ID: S41944.05**

Sample Tag: PT-TW-04

Collected Date/Time: 10/26/2022 11:00

Matrix: Groundwater

COC Reference: 154811

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 10/27/22 11:40 | FEI221107-W1   | FEI221107-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/28/22 12:34 | SFT221028-W1-B | SFT221028-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/28/22 14:21 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/28/22 14:21 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S41944.06**

Sample Tag: PT-TW-02

Collected Date/Time: 10/26/2022 11:25

Matrix: Groundwater

COC Reference: 154811

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 10/27/22 11:45 | FEI221107-W1   | FEI221107-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/28/22 12:47 | SFT221028-W1-B | SFT221028-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/28/22 14:23 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/28/22 14:23 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S41944.07**

Sample Tag: PT-TW-01

Collected Date/Time: 10/26/2022 12:25

Matrix: Groundwater

COC Reference: 154811

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 10/27/22 11:50 | FEI221107-W1   | FEI221107-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 10/28/22 12:59 | SFT221028-W1-B | SFT221028-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 10/28/22 14:26 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 10/28/22 14:26 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S41944.08

Sample Tag: PT-TW-03

Collected Date/Time: 10/26/2022 13:15

Matrix: Groundwater

COC Reference: 154811

| Analysis                | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|-------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b>Inorganics</b>       |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:55 | FEI221107-W1   | FEI221107-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                 | E300.0            | 10/28/22 13:12 | SFT221028-W1-B | SFT221028-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b>Metals</b>           |                   |                |                |                |      |                   |
| Arsenic                 | E200.8            | 10/28/22 14:28 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |
| Iron                    | E200.8            | 10/28/22 14:28 | MT4-22-1028A   | MTD-102822-3   | No   | BLK/LCS/MS/MSD    |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI221107-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method            | Run Date/Time  | Batch ID     |
|-----------|-------------------------|-------------------|----------------|--------------|
| S41944.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:20 | FEI221107-W1 |
| S41944.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:30 | FEI221107-W1 |
| S41944.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:40 | FEI221107-W1 |
| S41944.06 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:45 | FEI221107-W1 |
| S41944.07 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:50 | FEI221107-W1 |
| S41944.08 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 10/27/22 11:55 | FEI221107-W1 |

### Inorganics, Prep Batch ID: SFT221028-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S41944.03 | Sulfate  | E300.0 | 10/28/22 12:08 | SFT221028-W1-B |
| S41944.04 | Sulfate  | E300.0 | 10/28/22 12:21 | SFT221028-W1-B |
| S41944.05 | Sulfate  | E300.0 | 10/28/22 12:34 | SFT221028-W1-B |
| S41944.06 | Sulfate  | E300.0 | 10/28/22 12:47 | SFT221028-W1-B |
| S41944.07 | Sulfate  | E300.0 | 10/28/22 12:59 | SFT221028-W1-B |
| S41944.08 | Sulfate  | E300.0 | 10/28/22 13:12 | SFT221028-W1-B |

### Metals, Prep Batch ID: MTD-102822-3

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S41944.01 | Arsenic  | E200.8 | 10/28/22 14:31 | MT4-22-1028A |
| S41944.01 | Lithium  | E200.8 | 10/28/22 14:31 | MT4-22-1028A |
| S41944.02 | Arsenic  | E200.8 | 10/28/22 14:47 | MT4-22-1028A |
| S41944.02 | Lithium  | E200.8 | 10/28/22 14:47 | MT4-22-1028A |
| S41944.03 | Arsenic  | E200.8 | 10/28/22 14:15 | MT4-22-1028A |
| S41944.03 | Iron     | E200.8 | 10/28/22 14:15 | MT4-22-1028A |
| S41944.04 | Arsenic  | E200.8 | 10/28/22 14:18 | MT4-22-1028A |
| S41944.04 | Iron     | E200.8 | 10/28/22 14:18 | MT4-22-1028A |
| S41944.05 | Arsenic  | E200.8 | 10/28/22 14:21 | MT4-22-1028A |
| S41944.05 | Iron     | E200.8 | 10/28/22 14:21 | MT4-22-1028A |
| S41944.06 | Arsenic  | E200.8 | 10/28/22 14:23 | MT4-22-1028A |
| S41944.06 | Iron     | E200.8 | 10/28/22 14:23 | MT4-22-1028A |
| S41944.07 | Arsenic  | E200.8 | 10/28/22 14:26 | MT4-22-1028A |
| S41944.07 | Iron     | E200.8 | 10/28/22 14:26 | MT4-22-1028A |
| S41944.08 | Arsenic  | E200.8 | 10/28/22 14:28 | MT4-22-1028A |
| S41944.08 | Iron     | E200.8 | 10/28/22 14:28 | MT4-22-1028A |



# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI221107-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI221107-W1.LRB1

Run in Batch: FEI221107-W1, Run Date: 11/07/2022 11:00, Prep Date: 11/07/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI221107-W1.LCS1

Run in Batch: FEI221107-W1, Run Date: 11/07/2022 11:15, Prep Date: 11/07/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 100   | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI221107-W1.MS1, Parent Sample ID: S41944.04

Run in Batch: FEI221107-W1, Run Date: 11/07/2022 11:35, Prep Date: 11/07/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 95    | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI221107-W1.DP1, Parent Sample ID: S41944.03

Run in Batch: FEI221107-W1, Run Date: 11/07/2022 11:25, Prep Date: 11/07/2022, Matrix: Liquid, Dilution: 5

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | <1  | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT221028-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT221028-W1-B.LRB1

Run in Batch: SFT221028-W1-B, Run Date: 10/28/2022 08:30, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT221028-W1-B.LCS1

Run in Batch: SFT221028-W1-B, Run Date: 10/28/2022 08:55, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 98    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT221028-W1-B.MS1, Parent Sample ID: S41918.01

Run in Batch: SFT221028-W1-B, Run Date: 10/28/2022 09:59, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 98    | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT221028-W1-B.MSD1, Parent Sample ID: SFT221028-W1-B.MS1

Run in Batch: SFT221028-W1-B, Run Date: 10/28/2022 10:12, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 99    | 80  | 120 | 1   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT221028-W1-B.DP1, Parent Sample ID: S41918.01

Run in Batch: SFT221028-W1-B, Run Date: 10/28/2022 09:46, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |

## QC Report - Batch QC Results

**Metals, Prep Batch ID: MTD-102822-3**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Blank (BLK)**

Lab Sample ID: MT4-22-1028A.022.LRB

Run in Batch: MT4-22-1028A, Run Date: 10/28/2022 14:03, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL    | Units |
|---------|-------|------|--------|-------|
| Arsenic |       | ND   | 0.0004 | mg/L  |
| Iron    |       | ND   | 0.004  | mg/L  |
| Lithium |       | ND   | 0.001  | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-22-1028A.020.LCS

Run in Batch: MT4-22-1028A, Run Date: 10/28/2022 13:55, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 97    | 85  | 115 |
| Iron    |       | 102   | 85  | 115 |
| Lithium |       | 96    | 85  | 115 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1028A.043.MS, Parent Sample ID: S41944.08

Run in Batch: MT4-22-1028A, Run Date: 10/28/2022 14:36, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 106   | 75  | 125 |
| Iron    |       | 108   | 75  | 125 |
| Lithium |       | 95    | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1028A.059.MS, Parent Sample ID: S41668.01

Run in Batch: MT4-22-1028A, Run Date: 10/28/2022 15:10, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 25

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 107   | 75  | 125 |
| Iron    |       | 95    | 75  | 125 |
| Lithium |       | 97    | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1028A.044.MSD, Parent Sample ID: MT4-22-1028A.043.MS

Run in Batch: MT4-22-1028A, Run Date: 10/28/2022 14:40, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 103   | 75  | 125 | 2   | 20     |
| Iron    |       | 108   | 75  | 125 | 0   | 20     |
| Lithium |       | 102   | 75  | 125 | 6   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1028A.060.MSD, Parent Sample ID: MT4-22-1028A.059.MS

Run in Batch: MT4-22-1028A, Run Date: 10/28/2022 15:12, Prep Date: 10/28/2022, Matrix: Liquid, Dilution: 25

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 107   | 75  | 125 | 0   | 20     |
| Iron    |       | 94    | 75  | 125 | 1   | 20     |
| Lithium |       | 101   | 75  | 125 | 3   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S41944

Client:TRC (TRC)

Project: River Rouge Pilot Test

Submitted: 10/28/2022 11:00 Login User: MMC

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

## Sample Receiving

- |     |  |  |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

## Chain of Custody

- |     |  |  |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab   |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC          |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

## Preservation

- |     |  |   |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation        |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?    |

## Bottle Conditions

- |     |  |   |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                            |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used       |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                            |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received             |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration         |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time         |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

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: S41944 Submitted: 10/28/2022 11:00

Client: TRC (TRC)

Project: River Rouge Pilot Test

Initial Preservation Check: 10/28/2022 11:20 MMC

Preservation Recheck (E200.8): N/A

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S41944.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.06 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.07 | 125ml Plastic HNO3    | <2        |        |          |       |
| S41944.08 | 125ml Plastic HNO3    | <2        |        |          |       |





# Analytical Laboratory Report

Report ID: S42473.01(01)+QC01  
Generated on 11/16/2022

## Report to

---

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:  
Email: SMarkesic@trccompanies.com

Additional Contacts: Vince Buening

## Report produced by

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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

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Lab Sample ID(s): S42473.01-S42473.10  
Project: DTE RRPP Pilot Test  
Collected Date(s): 11/09/2022 - 11/10/2022  
Submitted Date/Time: 11/11/2022 11:26  
Sampled by: B. Yelen  
P.O. #: 188112

## Table of Contents

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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There is no additional narrative for this analytical report





# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (10 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S42473.01 | MW-16-01   | Groundwater | 11/09/22 10:45      |
| S42473.02 | PT-TW-04   | Groundwater | 11/09/22 11:30      |
| S42473.03 | PT-TW-02   | Groundwater | 11/09/22 12:15      |
| S42473.04 | PT-TW-03   | Groundwater | 11/09/22 13:00      |
| S42473.05 | PT-TW-01   | Groundwater | 11/09/22 13:50      |
| S42473.06 | MW-17-16   | Groundwater | 11/09/22 14:45      |
| S42473.07 | MW-17-17   | Groundwater | 11/10/22 11:05      |
| S42473.08 | MW-17-14   | Groundwater | 11/10/22 12:15      |
| S42473.09 | MW-17-15   | Groundwater | 11/10/22 13:35      |
| S42473.10 | DUP-01     | Groundwater | 11/09/22 00:01      |



# Analytical Laboratory Report

Lab Sample ID: S42473.01

Sample Tag: MW-16-01

Collected Date/Time: 11/09/2022 10:45

Matrix: Groundwater

COC Reference: 155357

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.7               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.7               | IR            |

**Extraction / Prep.**

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 11/14/22 13:13 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 11/11/22 13:56, Analyst: JDP**

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 11/16/22 14:20, Analyst: JKB**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 2.35   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 11/16/22 11:59, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 95.4   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

**Method: E200.8, Run Date: 11/16/22 10:57, Analyst: CCM**

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.099        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.267        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.91         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 2.50         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.058        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

**Method: E245.1, Run Date: 11/14/22 16:09, 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: S42473.02

Sample Tag: PT-TW-04

Collected Date/Time: 11/09/2022 11:30

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.7               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 11/14/22 13:13 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 11/11/22 14:09, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/16/22 14:30, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.65   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 11/16/22 12:01, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 117    | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 11/16/22 11:01, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.073        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.654        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.12         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 1.73         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.064        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 11/14/22 16:12, 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: S42473.03

Sample Tag: PT-TW-02

Collected Date/Time: 11/09/2022 12:15

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.7               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 11/14/22 13:13 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 11/11/22 14:22, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/16/22 14:40, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.75   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 11/16/22 12:02, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 115    | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 11/16/22 11:04, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.003        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.516        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.01         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 0.78         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.055        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 11/14/22 16:15, 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: S42473.04

Sample Tag: PT-TW-03

Collected Date/Time: 11/09/2022 13:00

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.7               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 11/14/22 13:13 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 11/11/22 14:35, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/16/22 14:45, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.90   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 11/16/22 12:04, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 96.1   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 11/16/22 11:07, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.028        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.467        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.79         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 0.95         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.049        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 11/14/22 16:19, 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: S42473.05

Sample Tag: PT-TW-01

Collected Date/Time: 11/09/2022 13:50

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.7               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 11/14/22 13:13 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 11/11/22 14:47, Analyst: JDP

| Parameter | Result | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|------|-------|----------|------------|-------|
| Sulfate   | 72     | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/16/22 14:50, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.65   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 11/16/22 12:05, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 73.4   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 11/16/22 11:10, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.009        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.175        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.23         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 0.72         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.027        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.013        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 11/14/22 16:22, 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: S42473.06

Sample Tag: MW-17-16

Collected Date/Time: 11/09/2022 14:45

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Metals

Method: E200.8, Run Date: 11/16/22 11:13, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.105  | 0.002 |     | mg/L  | 2        | 7440-38-2 |       |
| Lithium*  | 0.043  | 0.005 |     | mg/L  | 2        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S42473.07

Sample Tag: MW-17-17

Collected Date/Time: 11/10/2022 11:05

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Metals

Method: E200.8, Run Date: 11/16/22 11:15, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 2        | 7440-38-2 |       |
| Lithium*  | 0.011        | 0.005 |     | mg/L  | 2        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S42473.08

Sample Tag: MW-17-14

Collected Date/Time: 11/10/2022 12:15

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Metals

Method: E200.8, Run Date: 11/16/22 11:18, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.003  | 0.002 |     | mg/L  | 2        | 7440-38-2 |       |
| Lithium*  | 0.018  | 0.005 |     | mg/L  | 2        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S42473.09

Sample Tag: MW-17-15

Collected Date/Time: 11/10/2022 13:35

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Metals

Method: E200.8, Run Date: 11/16/22 11:21, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.097  | 0.002 |     | mg/L  | 2        | 7440-38-2 |       |
| Lithium*  | 0.079  | 0.005 |     | mg/L  | 2        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S42473.10

Sample Tag: DUP-01

Collected Date/Time: 11/09/2022 00:01

Matrix: Groundwater

COC Reference: 155357

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.7               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.7               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.7               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 11/14/22 13:13 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 11/16/22 09:40 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 11/11/22 15:00, Analyst: JDP

| Parameter | Result       | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------------|----|------|-------|----------|------------|-------|
| Sulfate   | Not detected | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 11/16/22 14:55, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 2.35   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 11/16/22 12:07, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 92.9   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 11/16/22 11:24, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.098        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.268        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.88         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 2.56         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.056        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 11/14/22 16:25, Analyst: CTV

| Parameter | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|--------|-----|-------|----------|-----------|-------|
| Mercury   | Not detected | 0.0002 |     | mg/L  | 1        | 7439-97-6 |       |



# Quality Control Report

Report ID: S42473.01(01)+QC01  
Generated on 11/16/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:

Report Produced by

Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S42473.01-S42473.10  
Project: DTE RRPP Pilot Test  
Submitted Date/Time: 11/11/2022 11:26  
Sampled by: B. Yelen  
P.O. #: 188112

QC Report Sections

Cover Page (Page 16)  
Analysis Summary (Pages 17-26)  
Prep Batch Summary (Pages 27-29)  
Batch QC Results (Pages 30-34)

Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

# QC Report - Analysis Summary

**Lab Sample ID: S42473.01**

Sample Tag: MW-16-01

Collected Date/Time: 11/09/2022 10:45

Matrix: Groundwater

COC Reference: 155357

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 11/16/22 14:20 | FEI221116-W1   | FEI221116-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 11/11/22 13:56 | SFT221111-W2-B | SFT221111-W2-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 11/16/22 11:59 | MT4-22-1116B   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 11/14/22 16:09 | HG3-22-1114B   | HGD-111422-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 11/16/22 10:57 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S42473.02**

Sample Tag: PT-TW-04

Collected Date/Time: 11/09/2022 11:30

Matrix: Groundwater

COC Reference: 155357

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 11/16/22 14:30 | FEI221116-W1   | FEI221116-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 11/11/22 14:09 | SFT221111-W2-B | SFT221111-W2-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 11/16/22 12:01 | MT4-22-1116B   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 11/14/22 16:12 | HG3-22-1114B   | HGD-111422-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 11/16/22 11:01 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |



# QC Report - Analysis Summary

**Lab Sample ID: S42473.03**

Sample Tag: PT-TW-02

Collected Date/Time: 11/09/2022 12:15

Matrix: Groundwater

COC Reference: 155357

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 11/16/22 14:40 | FEI221116-W1   | FEI221116-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 11/11/22 14:22 | SFT221111-W2-B | SFT221111-W2-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 11/16/22 12:02 | MT4-22-1116B   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 11/14/22 16:15 | HG3-22-1114B   | HGD-111422-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 11/16/22 11:04 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S42473.04**

Sample Tag: PT-TW-03

Collected Date/Time: 11/09/2022 13:00

Matrix: Groundwater

COC Reference: 155357

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 11/16/22 14:45 | FEI221116-W1   | FEI221116-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 11/11/22 14:35 | SFT221111-W2-B | SFT221111-W2-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 11/16/22 12:04 | MT4-22-1116B   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 11/14/22 16:19 | HG3-22-1114B   | HGD-111422-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 11/16/22 11:07 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |

## QC Report - Analysis Summary

**Lab Sample ID: S42473.05**

Sample Tag: PT-TW-01

Collected Date/Time: 11/09/2022 13:50

Matrix: Groundwater

COC Reference: 155357

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 11/16/22 14:50 | FEI221116-W1   | FEI221116-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 11/11/22 14:47 | SFT221111-W2-B | SFT221111-W2-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 11/16/22 12:05 | MT4-22-1116B   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 11/14/22 16:22 | HG3-22-1114B   | HGD-111422-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 11/16/22 11:10 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S42473.06

Sample Tag: MW-17-16

Collected Date/Time: 11/09/2022 14:45

Matrix: Groundwater

COC Reference: 155357

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 11/16/22 11:13 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 11/16/22 11:13 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S42473.07

Sample Tag: MW-17-17

Collected Date/Time: 11/10/2022 11:05

Matrix: Groundwater

COC Reference: 155357

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 11/16/22 11:15 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 11/16/22 11:15 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S42473.08

Sample Tag: MW-17-14

Collected Date/Time: 11/10/2022 12:15

Matrix: Groundwater

COC Reference: 155357

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 11/16/22 11:18 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 11/16/22 11:18 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S42473.09

Sample Tag: MW-17-15

Collected Date/Time: 11/10/2022 13:35

Matrix: Groundwater

COC Reference: 155357

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 11/16/22 11:21 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 11/16/22 11:21 | MT4-22-1116A | MTD-111622-2 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

**Lab Sample ID: S42473.10**

Sample Tag: DUP-01

Collected Date/Time: 11/09/2022 00:01

Matrix: Groundwater

COC Reference: 155357

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH811 | 11/16/22 14:55 | FEI221116-W1   | FEI221116-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 11/11/22 15:00 | SFT221111-W2-B | SFT221111-W2-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 11/16/22 12:07 | MT4-22-1116B   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 11/14/22 16:25 | HG3-22-1114B   | HGD-111422-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 11/16/22 11:24 | MT4-22-1116A   | MTD-111622-2   | No   | BLK/LCS/MS/MSD    |



## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI221116-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method            | Run Date/Time  | Batch ID     |
|-----------|-------------------------|-------------------|----------------|--------------|
| S42473.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 11/16/22 14:20 | FEI221116-W1 |
| S42473.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 11/16/22 14:30 | FEI221116-W1 |
| S42473.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 11/16/22 14:40 | FEI221116-W1 |
| S42473.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 11/16/22 14:45 | FEI221116-W1 |
| S42473.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 11/16/22 14:50 | FEI221116-W1 |
| S42473.10 | Ferrous Iron, Dissolved | SM3500FeB/HACH811 | 11/16/22 14:55 | FEI221116-W1 |

### Inorganics, Prep Batch ID: SFT221111-W2-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S42473.01 | Sulfate  | E300.0 | 11/11/22 13:56 | SFT221111-W2-B |
| S42473.02 | Sulfate  | E300.0 | 11/11/22 14:09 | SFT221111-W2-B |
| S42473.03 | Sulfate  | E300.0 | 11/11/22 14:22 | SFT221111-W2-B |
| S42473.04 | Sulfate  | E300.0 | 11/11/22 14:35 | SFT221111-W2-B |
| S42473.05 | Sulfate  | E300.0 | 11/11/22 14:47 | SFT221111-W2-B |
| S42473.10 | Sulfate  | E300.0 | 11/11/22 15:00 | SFT221111-W2-B |

### Metals, Prep Batch ID: HGD-111422-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S42473.01 | Mercury  | E245.1 | 11/14/22 16:09 | HG3-22-1114B |
| S42473.02 | Mercury  | E245.1 | 11/14/22 16:12 | HG3-22-1114B |
| S42473.03 | Mercury  | E245.1 | 11/14/22 16:15 | HG3-22-1114B |
| S42473.04 | Mercury  | E245.1 | 11/14/22 16:19 | HG3-22-1114B |
| S42473.05 | Mercury  | E245.1 | 11/14/22 16:22 | HG3-22-1114B |
| S42473.10 | Mercury  | E245.1 | 11/14/22 16:25 | HG3-22-1114B |

### Metals, Prep Batch ID: MTD-111622-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S42473.01 | Antimony   | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Arsenic    | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Barium     | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Beryllium  | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Boron      | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Cadmium    | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Calcium    | E200.8 | 11/16/22 11:59 | MT4-22-1116B |
| S42473.01 | Chromium   | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Cobalt     | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Iron       | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Lead       | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Lithium    | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Molybdenum | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Selenium   | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.01 | Thallium   | E200.8 | 11/16/22 10:57 | MT4-22-1116A |
| S42473.02 | Antimony   | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Arsenic    | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Barium     | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Beryllium  | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Boron      | E200.8 | 11/16/22 11:01 | MT4-22-1116A |

## QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-111622-2 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S42473.02 | Cadmium    | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Calcium    | E200.8 | 11/16/22 12:01 | MT4-22-1116B |
| S42473.02 | Chromium   | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Cobalt     | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Iron       | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Lead       | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Lithium    | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Molybdenum | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Selenium   | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.02 | Thallium   | E200.8 | 11/16/22 11:01 | MT4-22-1116A |
| S42473.03 | Antimony   | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Arsenic    | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Barium     | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Beryllium  | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Boron      | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Cadmium    | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Calcium    | E200.8 | 11/16/22 12:02 | MT4-22-1116B |
| S42473.03 | Chromium   | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Cobalt     | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Iron       | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Lead       | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Lithium    | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Molybdenum | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Selenium   | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.03 | Thallium   | E200.8 | 11/16/22 11:04 | MT4-22-1116A |
| S42473.04 | Antimony   | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Arsenic    | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Barium     | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Beryllium  | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Boron      | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Cadmium    | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Calcium    | E200.8 | 11/16/22 12:04 | MT4-22-1116B |
| S42473.04 | Chromium   | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Cobalt     | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Iron       | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Lead       | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Lithium    | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Molybdenum | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Selenium   | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.04 | Thallium   | E200.8 | 11/16/22 11:07 | MT4-22-1116A |
| S42473.05 | Antimony   | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Arsenic    | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Barium     | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Beryllium  | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Boron      | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Cadmium    | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Calcium    | E200.8 | 11/16/22 12:05 | MT4-22-1116B |
| S42473.05 | Chromium   | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Cobalt     | E200.8 | 11/16/22 11:10 | MT4-22-1116A |

## QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-111622-2 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S42473.05 | Iron       | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Lead       | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Lithium    | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Molybdenum | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Selenium   | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.05 | Thallium   | E200.8 | 11/16/22 11:10 | MT4-22-1116A |
| S42473.06 | Arsenic    | E200.8 | 11/16/22 11:13 | MT4-22-1116A |
| S42473.06 | Lithium    | E200.8 | 11/16/22 11:13 | MT4-22-1116A |
| S42473.07 | Arsenic    | E200.8 | 11/16/22 11:15 | MT4-22-1116A |
| S42473.07 | Lithium    | E200.8 | 11/16/22 11:15 | MT4-22-1116A |
| S42473.08 | Arsenic    | E200.8 | 11/16/22 11:18 | MT4-22-1116A |
| S42473.08 | Lithium    | E200.8 | 11/16/22 11:18 | MT4-22-1116A |
| S42473.09 | Arsenic    | E200.8 | 11/16/22 11:21 | MT4-22-1116A |
| S42473.09 | Lithium    | E200.8 | 11/16/22 11:21 | MT4-22-1116A |
| S42473.10 | Antimony   | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Arsenic    | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Barium     | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Beryllium  | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Boron      | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Cadmium    | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Calcium    | E200.8 | 11/16/22 12:07 | MT4-22-1116B |
| S42473.10 | Chromium   | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Cobalt     | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Iron       | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Lead       | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Lithium    | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Molybdenum | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Selenium   | E200.8 | 11/16/22 11:24 | MT4-22-1116A |
| S42473.10 | Thallium   | E200.8 | 11/16/22 11:24 | MT4-22-1116A |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI221116-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI221116-W1.LRB1

Run in Batch: FEI221116-W1, Run Date: 11/16/2022 14:00, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI221116-W1.LCS1

Run in Batch: FEI221116-W1, Run Date: 11/16/2022 14:15, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 98    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI221116-W1.MS1, Parent Sample ID: S42473.02

Run in Batch: FEI221116-W1, Run Date: 11/16/2022 14:35, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 100   | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI221116-W1.DP1, Parent Sample ID: S42473.01

Run in Batch: FEI221116-W1, Run Date: 11/16/2022 14:25, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 5

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | 2   | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT221111-W2-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT221111-W2-B.LRB1

Run in Batch: SFT221111-W2-B, Run Date: 11/11/2022 13:18, Prep Date: 11/11/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT221111-W2-B.LCS1

Run in Batch: SFT221111-W2-B, Run Date: 11/11/2022 13:43, Prep Date: 11/11/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 99    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT221111-W2-B.MS1, Parent Sample ID: S42473.01

Run in Batch: SFT221111-W2-B, Run Date: 11/11/2022 15:26, Prep Date: 11/11/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 95    | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT221111-W2-B.MSD1, Parent Sample ID: SFT221111-W2-B.MS1

Run in Batch: SFT221111-W2-B, Run Date: 11/11/2022 15:39, Prep Date: 11/11/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 96    | 80  | 120 | 1   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT221111-W2-B.DP1, Parent Sample ID: S42473.01

Run in Batch: SFT221111-W2-B, Run Date: 11/11/2022 15:13, Prep Date: 11/11/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |

## QC Report - Batch QC Results

### Metals, Prep Batch ID: HGD-111422-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Blank (BLK)

Lab Sample ID: HG3-22-1114B.040.LRB

Run in Batch: HG3-22-1114B, Run Date: 11/14/2022 15:00, Prep Date: 11/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Mercury |       | ND   | 0.1 | ug/L  |

#### Laboratory Control Sample (LCS)

Lab Sample ID: HG3-22-1114B.039.LCS

Run in Batch: HG3-22-1114B, Run Date: 11/14/2022 14:56, Prep Date: 11/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 110   | 85  | 115 |

#### Matrix Spike (MS)

Lab Sample ID: HG3-22-1114B.051.MS, Parent Sample ID: S42439.01

Run in Batch: HG3-22-1114B, Run Date: 11/14/2022 15:36, Prep Date: 11/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 108   | 80  | 120 |

#### Matrix Spike (MS)

Lab Sample ID: HG3-22-1114B.059.MS, Parent Sample ID: S42439.05

Run in Batch: HG3-22-1114B, Run Date: 11/14/2022 16:02, Prep Date: 11/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 108   | 80  | 120 |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG3-22-1114B.052.MSD, Parent Sample ID: HG3-22-1114B.051.MS

Run in Batch: HG3-22-1114B, Run Date: 11/14/2022 15:39, Prep Date: 11/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 108   | 80  | 120 | 0   | 20     |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG3-22-1114B.060.MSD, Parent Sample ID: HG3-22-1114B.059.MS

Run in Batch: HG3-22-1114B, Run Date: 11/14/2022 16:06, Prep Date: 11/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 108   | 80  | 120 | 0   | 20     |

## QC Report - Batch QC Results

**Metals, Prep Batch ID: MTD-111622-2**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Blank (BLK)**

Lab Sample ID: MT4-22-1116A.022.LRB

Run in Batch: MT4-22-1116A, Run Date: 11/16/2022 10:53, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | Conc | RDL    | Units |
|------------|-------|------|--------|-------|
| Antimony   |       | ND   | 0.001  | mg/L  |
| Arsenic    |       | ND   | 0.0004 | mg/L  |
| Barium     |       | ND   | 0.001  | mg/L  |
| Beryllium  |       | ND   | 0.0002 | mg/L  |
| Boron      |       | ND   | 0.008  | mg/L  |
| Cadmium    |       | ND   | 0.0001 | mg/L  |
| Chromium   |       | ND   | 0.001  | mg/L  |
| Cobalt     |       | ND   | 0.001  | mg/L  |
| Iron       |       | ND   | 0.004  | mg/L  |
| Lead       |       | ND   | 0.0006 | mg/L  |
| Lithium    |       | ND   | 0.001  | mg/L  |
| Molybdenum |       | ND   | 0.001  | mg/L  |
| Selenium   |       | ND   | 0.001  | mg/L  |
| Thallium   |       | ND   | 0.0004 | mg/L  |

**Blank (BLK)**

Lab Sample ID: MT4-22-1116B.015.LRB

Run in Batch: MT4-22-1116B, Run Date: 11/16/2022 11:57, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Calcium |       | ND   | 0.05 | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-22-1116A.020.LCS

Run in Batch: MT4-22-1116A, Run Date: 11/16/2022 10:50, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 108   | 85  | 115 |
| Arsenic    |       | 100   | 85  | 115 |
| Barium     |       | 104   | 85  | 115 |
| Beryllium  |       | 103   | 85  | 115 |
| Boron      |       | 103   | 85  | 115 |
| Cadmium    |       | 101   | 85  | 115 |
| Chromium   |       | 104   | 85  | 115 |
| Cobalt     |       | 103   | 85  | 115 |
| Iron       |       | 109   | 85  | 115 |
| Lead       |       | 100   | 85  | 115 |
| Lithium    |       | 104   | 85  | 115 |
| Molybdenum |       | 102   | 85  | 115 |
| Selenium   |       | 101   | 85  | 115 |
| Thallium   |       | 104   | 85  | 115 |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-22-1116B.014.LCS

Run in Batch: MT4-22-1116B, Run Date: 11/16/2022 11:56, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 93    | 85  | 115 |

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-111622-2 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1116A.043.MS, Parent Sample ID: S42473.10

Run in Batch: MT4-22-1116A, Run Date: 11/16/2022 11:27, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 2

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 104   | 75  | 125 |
| Arsenic    |       | 108   | 75  | 125 |
| Barium     |       | 89    | 75  | 125 |
| Beryllium  |       | 104   | 75  | 125 |
| Boron      |       | 117   | 75  | 125 |
| Cadmium    |       | 98    | 75  | 125 |
| Chromium   |       | 106   | 75  | 125 |
| Cobalt     |       | 101   | 75  | 125 |
| Iron       |       | 90    | 75  | 125 |
| Lead       |       | 94    | 75  | 125 |
| Lithium    |       | 105   | 75  | 125 |
| Molybdenum |       | 102   | 75  | 125 |
| Selenium   |       | 103   | 75  | 125 |
| Thallium   |       | 100   | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-22-1116B.028.MS, Parent Sample ID: S42473.10

Run in Batch: MT4-22-1116B, Run Date: 11/16/2022 12:07, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 125   | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1116A.044.MSD, Parent Sample ID: MT4-22-1116A.043.MS

Run in Batch: MT4-22-1116A, Run Date: 11/16/2022 11:30, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 2

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Antimony   |       | 107   | 75  | 125 | 3   | 20     |
| Arsenic    |       | 105   | 75  | 125 | 1   | 20     |
| Barium     |       | 101   | 75  | 125 | 3   | 20     |
| Beryllium  |       | 104   | 75  | 125 | 0   | 20     |
| Boron      |       | 120   | 75  | 125 | 0   | 20     |
| Cadmium    |       | 99    | 75  | 125 | 1   | 20     |
| Chromium   |       | 110   | 75  | 125 | 4   | 20     |
| Cobalt     |       | 104   | 75  | 125 | 3   | 20     |
| Iron       | *     | 60    | 75  | 125 | 1   | 20     |
| Lead       |       | 93    | 75  | 125 | 1   | 20     |
| Lithium    |       | 107   | 75  | 125 | 1   | 20     |
| Molybdenum |       | 106   | 75  | 125 | 4   | 20     |
| Selenium   |       | 105   | 75  | 125 | 2   | 20     |
| Thallium   |       | 100   | 75  | 125 | 0   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-22-1116B.029.MSD, Parent Sample ID: MT4-22-1116B.028.MS

Run in Batch: MT4-22-1116B, Run Date: 11/16/2022 12:09, Prep Date: 11/16/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Calcium |       | 115   | 75  | 125 | 0   | 20     |



# Merit Laboratories Login Checklist

Lab Set ID:S42473

Client:TRC (TRC)

Project: DTE RRPP Pilot Test

Submitted: 11/11/2022 11:26 Login User: MMC

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Selection                | Description  | Note   |
|--------------------------|--|--|
| <b>Sample Receiving</b>  |  |  |
| 01.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.7 |
| 02.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05.                      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| <b>Chain of Custody</b>  |  |  |
| 06.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                              |
| 07.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab                 |
| 08.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC                        |
| 09.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to:               |
| <b>Preservation</b>      |  |  |
| 10.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation           |
| 11.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs)    |
| 12.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?       |
| <b>Bottle Conditions</b> |  |  |
| 13.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                                     |
| 14.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used                |
| 15.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                                     |
| 16.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received                      |
| 17.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration                  |
| 18.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time                  |
| 19.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace          |

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: S42473 Submitted: 11/11/2022 11:26

Client: TRC (TRC)

Project: DTE RRPP Pilot Test

Initial Preservation Check: 11/11/2022 12:26 MMC

Preservation Recheck (E200.8): N/A

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S42473.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.06 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.07 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.08 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.09 | 125ml Plastic HNO3    | <2        |        |          |       |
| S42473.10 | 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 \_\_\_\_\_ 155357

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME **V. BUENING, S. MARKESIC**  
 COMPANY **TRC**  
 ADDRESS **1540 EISENHOWER PL**  
 CITY **ANN ARBOR** STATE **MI** ZIP CODE **48108**  
 PHONE NO. \_\_\_\_\_ CELL NO. \_\_\_\_\_ P.O. NO. **188112**  
 E-MAIL ADDRESS **vbuening@trccompanies.com** **smarkesic@trccompanies.com** 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 **DTE RPP PILOT TEST** SAMPLER(S) - PLEASE PRINT/SIGN NAME **B. YELEN**  
 TURNAROUND TIME REQUIRED  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER \_\_\_\_\_  
 DELIVERABLES REQUIRED  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER **TRC EDD**

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.<br><small>FOR LAB USE ONLY</small> | COLLECTION |      | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | NONE | HCl | HNO <sub>3</sub> | H <sub>2</sub> SO <sub>4</sub> | NaOH | MeOH | OTHER | ANALYSIS        |              |                        |                     |              | Special Instructions                                 |
|--|------------|------|---------------------------------------|--------|--------------|------|-----|------------------|--------------------------------|------|------|-------|-----------------|--------------|------------------------|---------------------|--------------|--|
|  | DATE       | TIME |                                       |        |              |      |     |                  |                                |      |      |       | SO <sub>4</sub> | TOTAL AS, Fe | APP III: B, Ca, Na, Ni | APP IV TOTAL METALS | TOTAL AS, Li |  |
| 42473.01   | 11.9.22    | 1045 | MW-16-01                              | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | X               | X            | X                      | X                   | X            | * Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl |
| .02  |            | 1130 | PT-TW-01                              |        | 4            | 1    | 2   | 1                |                                |      |      |       | X               | X            | X                      | X                   | X            |  |
| .03  |            | 1215 | PT-TW-02                              |        | 4            | 1    | 2   | 1                |                                |      |      |       | X               | X            | X                      | X                   | X            |  |
| .04  |            | 1300 | PT-TW-03                              |        | 4            | 1    | 2   | 1                |                                |      |      |       | X               | X            | X                      | X                   | X            |  |
| .05  |            | 1350 | PT-TW-01                              |        | 4            | 1    | 2   | 1                |                                |      |      |       | X               | X            | X                      | X                   | X            |  |
| .06  |            | 1445 | MW-17-16                              |        |              |      |     | 1                |                                |      |      |       |                 |              |                        |                     | X            |  |
| .07  | 11.10.22   | 1105 | MW-17-17                              |        |              |      |     | 1                |                                |      |      |       |                 |              |                        |                     | X            |  |
| .08  |            | 1215 | MW-17-14                              |        |              |      |     | 1                |                                |      |      |       |                 |              |                        |                     | X            |  |
| .09  |            | 1335 | MW-17-15                              |        |              |      |     | 1                |                                |      |      |       |                 |              |                        |                     | X            |  |
| .10  | 11.9.22    |      | DUP-01                                |        | 4            | 1    | 2   | 1                |                                |      |      |       | X               | X            | X                      | X                   | X            |  |

Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions

RELINQUISHED BY: **B. YELEN TRC**  Sampler DATE **11.10.22** TIME **1600**  
 RECEIVED BY: **TRC STOR** DATE **11.10.22** TIME **1600**  
 RELINQUISHED BY: **TRC** DATE **11/11/22** TIME **800**  
 RECEIVED BY: **Jan W** DATE **11/11/22** TIME **800**

RELINQUISHED BY: **Jan W** DATE **11/11/22** TIME **1426**  
 RECEIVED BY: **M. Chilcote** DATE **11/11/22** TIME **1126**  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_ NOTES: TEMP. ON ARRIVAL **4.7**  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_

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



# Analytical Laboratory Report

Report ID: S43021.01(01)+QC01  
Generated on 12/08/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:  
Email: SMarkesic@trccompanies.com

Additional Contacts: Vince Buening

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): S43021.01-S43021.06  
Project: RRPP Pilot Test  
Collected Date(s): 12/01/2022  
Submitted Date/Time: 12/02/2022 10:55  
Sampled by: B. Yelen  
P.O. #: 188112

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

---

There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (6 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43021.01 | MW-16-01   | Groundwater | 12/01/22 09:30      |
| S43021.02 | PT-TW-01   | Groundwater | 12/01/22 13:05      |
| S43021.03 | PT-TW-02   | Groundwater | 12/01/22 11:35      |
| S43021.04 | PT-TW-03R  | Groundwater | 12/01/22 12:25      |
| S43021.05 | PT-TW-04R  | Groundwater | 12/01/22 10:40      |
| S43021.06 | DUP-01     | Groundwater | 12/01/22 00:01      |





# Analytical Laboratory Report

Lab Sample ID: S43021.01

Sample Tag: MW-16-01

Collected Date/Time: 12/01/2022 09:30

Matrix: Groundwater

COC Reference: 155355

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.1               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 12/05/22 12:08 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 12/08/22 09:15 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/06/22 10:51, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 1,950  | 200 | 12  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/07/22 16:05, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 518    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/08/22 13:20, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 360    | 10.0 |     | mg/L  | 100      | 7440-70-2 |       |

Method: E200.8, Run Date: 12/08/22 14:19, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Iron      | 588    | 0.20 |     | mg/L  | 100      | 7439-89-6 |       |

Method: E200.8, Run Date: 12/08/22 10:52, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.031        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.283        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.22         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.075        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.017        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | 0.008        | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |



# Analytical Laboratory Report

Lab Sample ID: S43021.01 (continued)

Sample Tag: MW-16-01

Method: E245.1, Run Date: 12/05/22 13:27, 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: S43021.02

Sample Tag: PT-TW-01

Collected Date/Time: 12/01/2022 13:05

Matrix: Groundwater

COC Reference: 155355

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.1               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 12/05/22 12:08 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 12/08/22 09:15 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/06/22 09:33, Analyst: JDP

| Parameter | Result | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|------|-------|----------|------------|-------|
| Sulfate   | 68     | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/07/22 16:10, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.0    | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/08/22 13:22, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 117    | 10.0 |     | mg/L  | 100      | 7440-70-2 |       |

Method: E200.8, Run Date: 12/08/22 14:08, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Iron      | 1.08   | 0.02 |     | mg/L  | 2        | 7439-89-6 |       |

Method: E200.8, Run Date: 12/08/22 10:56, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.009        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.298        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.21         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.034        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.009        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |



# Analytical Laboratory Report

Lab Sample ID: S43021.02 (continued)

Sample Tag: PT-TW-01

Method: E245.1, Run Date: 12/05/22 13:30, 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: S43021.03

Sample Tag: PT-TW-02

Collected Date/Time: 12/01/2022 11:35

Matrix: Groundwater

COC Reference: 155355

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.1               | IR            |

**Extraction / Prep.**

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 12/05/22 12:08 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 12/08/22 09:15 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 12/06/22 11:42, Analyst: JDP**

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 577    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 12/07/22 16:15, Analyst: JKB**

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 146    | 1  |     | mg/L  | 50       | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 12/08/22 13:24, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 172    | 10.0 |     | mg/L  | 100      | 7440-70-2 |       |

**Method: E200.8, Run Date: 12/08/22 14:21, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Iron      | 227    | 0.20 |     | mg/L  | 100      | 7439-89-6 |       |

**Method: E200.8, Run Date: 12/08/22 11:00, Analyst: CCM**

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.007        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.216        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.27         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.068        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.012        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |



# Analytical Laboratory Report

Lab Sample ID: S43021.03 (continued)

Sample Tag: PT-TW-02

Method: E245.1, Run Date: 12/05/22 13:33, 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: S43021.04

Sample Tag: PT-TW-03R

Collected Date/Time: 12/01/2022 12:25

Matrix: Groundwater

COC Reference: 155355

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.1               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 12/05/22 12:08 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 12/08/22 09:15 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/06/22 11:55, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 2,400  | 200 | 12  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/07/22 16:20, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 323    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/08/22 13:25, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 380    | 10.0 |     | mg/L  | 100      | 7440-70-2 |       |

Method: E200.8, Run Date: 12/08/22 14:23, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Iron      | 781    | 0.20 |     | mg/L  | 100      | 7439-89-6 |       |

Method: E200.8, Run Date: 12/08/22 11:05, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.078        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.377        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.19         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.078        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.022        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | 0.009        | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |



# Analytical Laboratory Report

Lab Sample ID: S43021.04 (continued)

Sample Tag: PT-TW-03R

Method: E245.1, Run Date: 12/05/22 13:43, 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: S43021.05

Sample Tag: PT-TW-04R

Collected Date/Time: 12/01/2022 10:40

Matrix: Groundwater

COC Reference: 155355

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.1               | IR            |

**Extraction / Prep.**

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 12/05/22 12:08 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 12/08/22 09:15 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 12/06/22 12:21, Analyst: JDP**

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 777    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 12/07/22 16:25, Analyst: JKB**

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 195    | 10 |     | mg/L  | 500      | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 12/08/22 13:27, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 231    | 10.0 |     | mg/L  | 100      | 7440-70-2 |       |

**Method: E200.8, Run Date: 12/08/22 14:25, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Iron      | 203    | 0.20 |     | mg/L  | 100      | 7439-89-6 |       |

**Method: E200.8, Run Date: 12/08/22 11:13, Analyst: CCM**

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.078        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.304        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.33         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.075        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |



# Analytical Laboratory Report

Lab Sample ID: S43021.05 (continued)

Sample Tag: PT-TW-04R

Method: E245.1, Run Date: 12/05/22 13:46, 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: S43021.06

Sample Tag: DUP-01

Collected Date/Time: 12/01/2022 00:01

Matrix: Groundwater

COC Reference: 155355

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 4.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 4.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 4.1               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 12/05/22 12:08 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 12/08/22 09:15 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/06/22 12:33, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 1,960  | 200 | 12  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/07/22 16:30, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 505    | 10 |     | mg/L  | 500      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/08/22 13:28, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 354    | 10.0 |     | mg/L  | 100      | 7440-70-2 |       |

Method: E200.8, Run Date: 12/08/22 14:27, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Iron      | 582    | 0.20 |     | mg/L  | 100      | 7439-89-6 |       |

Method: E200.8, Run Date: 12/08/22 11:16, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.031        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.278        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.26         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.079        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.016        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | 0.008        | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |



# Analytical Laboratory Report

Lab Sample ID: S43021.06 (continued)

Sample Tag: DUP-01

Method: E245.1, Run Date: 12/05/22 13:50, Analyst: CTV

| Parameter | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|--------|-----|-------|----------|-----------|-------|
| Mercury   | Not detected | 0.0002 |     | mg/L  | 1        | 7439-97-6 |       |



# Quality Control Report

Report ID: S43021.01(01)+QC01  
Generated on 12/08/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:

Report Produced by

Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S43021.01-S43021.06  
Project: RRPP Pilot Test  
Submitted Date/Time: 12/02/2022 10:55  
Sampled by: B. Yelen  
P.O. #: 188112

QC Report Sections

Cover Page (Page 18)  
Analysis Summary (Pages 19-24)  
Prep Batch Summary (Pages 25-27)  
Batch QC Results (Pages 28-34)

Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

# QC Report - Analysis Summary

**Lab Sample ID: S43021.01**

Sample Tag: MW-16-01

Collected Date/Time: 12/01/2022 09:30

Matrix: Groundwater

COC Reference: 155355

| Analysis                 | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH8100 | 12/07/22 16:05 | FEI221207-W1   | FEI221207-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0             | 12/06/22 10:51 | SFT221206-W1-B | SFT221206-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                    |                |                |                |      |                   |
| Antimony                 | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8             | 12/08/22 13:20 | MT4-22-1208B   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8             | 12/08/22 14:19 | MT4-22-1208C   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1             | 12/05/22 13:27 | HG3-22-1205B   | HGD-120522-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8             | 12/08/22 10:52 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S43021.02**

Sample Tag: PT-TW-01

Collected Date/Time: 12/01/2022 13:05

Matrix: Groundwater

COC Reference: 155355

| Analysis                 | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH8102 | 12/07/22 16:10 | FEI221207-W1   | FEI221207-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0             | 12/06/22 09:33 | SFT221206-W1-B | SFT221206-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                    |                |                |                |      |                   |
| Antimony                 | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8             | 12/08/22 13:22 | MT4-22-1208B   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8             | 12/08/22 14:08 | MT4-22-1208C   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1             | 12/05/22 13:30 | HG3-22-1205B   | HGD-120522-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8             | 12/08/22 10:56 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |

## QC Report - Analysis Summary

**Lab Sample ID: S43021.03**

Sample Tag: PT-TW-02

Collected Date/Time: 12/01/2022 11:35

Matrix: Groundwater

COC Reference: 155355

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 12/07/22 16:15 | FEI221207-W1   | FEI221207-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 12/06/22 11:42 | SFT221206-W1-B | SFT221206-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 12/08/22 13:24 | MT4-22-1208B   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 12/08/22 14:21 | MT4-22-1208C   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 12/05/22 13:33 | HG3-22-1205B   | HGD-120522-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 12/08/22 11:00 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |



## QC Report - Analysis Summary

**Lab Sample ID: S43021.04**

Sample Tag: PT-TW-03R

Collected Date/Time: 12/01/2022 12:25

Matrix: Groundwater

COC Reference: 155355

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 12/07/22 16:20 | FEI221207-W1   | FEI221207-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 12/06/22 11:55 | SFT221206-W1-B | SFT221206-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 12/08/22 13:25 | MT4-22-1208B   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 12/08/22 14:23 | MT4-22-1208C   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 12/05/22 13:43 | HG3-22-1205B   | HGD-120522-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 12/08/22 11:05 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |

## QC Report - Analysis Summary

**Lab Sample ID: S43021.05**

Sample Tag: PT-TW-04R

Collected Date/Time: 12/01/2022 10:40

Matrix: Groundwater

COC Reference: 155355

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 12/07/22 16:25 | FEI221207-W1   | FEI221207-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 12/06/22 12:21 | SFT221206-W1-B | SFT221206-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Antimony                 | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8            | 12/08/22 13:27 | MT4-22-1208B   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 12/08/22 14:25 | MT4-22-1208C   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1            | 12/05/22 13:46 | HG3-22-1205B   | HGD-120522-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8            | 12/08/22 11:13 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S43021.06**

Sample Tag: DUP-01

Collected Date/Time: 12/01/2022 00:01

Matrix: Groundwater

COC Reference: 155355

| Analysis                 | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH8100 | 12/07/22 16:30 | FEI221207-W1   | FEI221207-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0             | 12/06/22 12:33 | SFT221206-W1-B | SFT221206-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                    |                |                |                |      |                   |
| Antimony                 | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Arsenic                  | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Beryllium                | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cadmium                  | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8             | 12/08/22 13:28 | MT4-22-1208B   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Cobalt                   | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8             | 12/08/22 14:27 | MT4-22-1208C   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lead                     | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Mercury                  | E245.1             | 12/05/22 13:50 | HG3-22-1205B   | HGD-120522-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |
| Thallium                 | E200.8             | 12/08/22 11:16 | MT4-22-1208A   | MTD-120822-1   | No   | BLK/LCS/MS/MSD    |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI221207-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method            | Run Date/Time  | Batch ID     |
|-----------|-------------------------|-------------------|----------------|--------------|
| S43021.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/07/22 16:05 | FEI221207-W1 |
| S43021.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/07/22 16:10 | FEI221207-W1 |
| S43021.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/07/22 16:15 | FEI221207-W1 |
| S43021.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/07/22 16:20 | FEI221207-W1 |
| S43021.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/07/22 16:25 | FEI221207-W1 |
| S43021.06 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/07/22 16:30 | FEI221207-W1 |

### Inorganics, Prep Batch ID: SFT221206-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S43021.01 | Sulfate  | E300.0 | 12/06/22 10:51 | SFT221206-W1-B |
| S43021.02 | Sulfate  | E300.0 | 12/06/22 09:33 | SFT221206-W1-B |
| S43021.03 | Sulfate  | E300.0 | 12/06/22 11:42 | SFT221206-W1-B |
| S43021.04 | Sulfate  | E300.0 | 12/06/22 11:55 | SFT221206-W1-B |
| S43021.05 | Sulfate  | E300.0 | 12/06/22 12:21 | SFT221206-W1-B |
| S43021.06 | Sulfate  | E300.0 | 12/06/22 12:33 | SFT221206-W1-B |

### Metals, Prep Batch ID: HGD-120522-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S43021.01 | Mercury  | E245.1 | 12/05/22 13:27 | HG3-22-1205B |
| S43021.02 | Mercury  | E245.1 | 12/05/22 13:30 | HG3-22-1205B |
| S43021.03 | Mercury  | E245.1 | 12/05/22 13:33 | HG3-22-1205B |
| S43021.04 | Mercury  | E245.1 | 12/05/22 13:43 | HG3-22-1205B |
| S43021.05 | Mercury  | E245.1 | 12/05/22 13:46 | HG3-22-1205B |
| S43021.06 | Mercury  | E245.1 | 12/05/22 13:50 | HG3-22-1205B |

### Metals, Prep Batch ID: MTD-120822-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S43021.01 | Antimony   | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Arsenic    | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Barium     | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Beryllium  | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Boron      | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Cadmium    | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Calcium    | E200.8 | 12/08/22 13:20 | MT4-22-1208B |
| S43021.01 | Chromium   | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Cobalt     | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Iron       | E200.8 | 12/08/22 14:19 | MT4-22-1208C |
| S43021.01 | Lead       | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Lithium    | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Molybdenum | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Selenium   | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.01 | Thallium   | E200.8 | 12/08/22 10:52 | MT4-22-1208A |
| S43021.02 | Antimony   | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Arsenic    | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Barium     | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Beryllium  | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Boron      | E200.8 | 12/08/22 10:56 | MT4-22-1208A |

## QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-120822-1 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S43021.02 | Cadmium    | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Calcium    | E200.8 | 12/08/22 13:22 | MT4-22-1208B |
| S43021.02 | Chromium   | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Cobalt     | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Iron       | E200.8 | 12/08/22 14:08 | MT4-22-1208C |
| S43021.02 | Lead       | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Lithium    | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Molybdenum | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Selenium   | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.02 | Thallium   | E200.8 | 12/08/22 10:56 | MT4-22-1208A |
| S43021.03 | Antimony   | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Arsenic    | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Barium     | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Beryllium  | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Boron      | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Cadmium    | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Calcium    | E200.8 | 12/08/22 13:24 | MT4-22-1208B |
| S43021.03 | Chromium   | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Cobalt     | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Iron       | E200.8 | 12/08/22 14:21 | MT4-22-1208C |
| S43021.03 | Lead       | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Lithium    | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Molybdenum | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Selenium   | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.03 | Thallium   | E200.8 | 12/08/22 11:00 | MT4-22-1208A |
| S43021.04 | Antimony   | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Arsenic    | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Barium     | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Beryllium  | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Boron      | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Cadmium    | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Calcium    | E200.8 | 12/08/22 13:25 | MT4-22-1208B |
| S43021.04 | Chromium   | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Cobalt     | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Iron       | E200.8 | 12/08/22 14:23 | MT4-22-1208C |
| S43021.04 | Lead       | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Lithium    | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Molybdenum | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Selenium   | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.04 | Thallium   | E200.8 | 12/08/22 11:05 | MT4-22-1208A |
| S43021.05 | Antimony   | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Arsenic    | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Barium     | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Beryllium  | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Boron      | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Cadmium    | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Calcium    | E200.8 | 12/08/22 13:27 | MT4-22-1208B |
| S43021.05 | Chromium   | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Cobalt     | E200.8 | 12/08/22 11:13 | MT4-22-1208A |

# QC Report - Prep Batch Summary

## Metals, Prep Batch ID: MTD-120822-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S43021.05 | Iron       | E200.8 | 12/08/22 14:25 | MT4-22-1208C |
| S43021.05 | Lead       | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Lithium    | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Molybdenum | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Selenium   | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.05 | Thallium   | E200.8 | 12/08/22 11:13 | MT4-22-1208A |
| S43021.06 | Antimony   | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Arsenic    | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Barium     | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Beryllium  | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Boron      | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Cadmium    | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Calcium    | E200.8 | 12/08/22 13:28 | MT4-22-1208B |
| S43021.06 | Chromium   | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Cobalt     | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Iron       | E200.8 | 12/08/22 14:27 | MT4-22-1208C |
| S43021.06 | Lead       | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Lithium    | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Molybdenum | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Selenium   | E200.8 | 12/08/22 11:16 | MT4-22-1208A |
| S43021.06 | Thallium   | E200.8 | 12/08/22 11:16 | MT4-22-1208A |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI221207-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI221207-W1.LRB1

Run in Batch: FEI221207-W1, Run Date: 12/07/2022 15:00, Prep Date: 12/07/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI221207-W1.LCS1

Run in Batch: FEI221207-W1, Run Date: 12/07/2022 15:15, Prep Date: 12/07/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 98    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI221207-W1.MS1, Parent Sample ID: S42998.10

Run in Batch: FEI221207-W1, Run Date: 12/07/2022 15:35, Prep Date: 12/07/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 95    | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI221207-W1.DP1, Parent Sample ID: S42998.09

Run in Batch: FEI221207-W1, Run Date: 12/07/2022 15:25, Prep Date: 12/07/2022, Matrix: Liquid, Dilution: 5

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | <1  | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT221206-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT221206-W1-B.LRB1

Run in Batch: SFT221206-W1-B, Run Date: 12/06/2022 08:42, Prep Date: 12/06/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT221206-W1-B.LCS1

Run in Batch: SFT221206-W1-B, Run Date: 12/06/2022 09:08, Prep Date: 12/06/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 96    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT221206-W1-B.MS1, Parent Sample ID: S43021.02

Run in Batch: SFT221206-W1-B, Run Date: 12/06/2022 11:16, Prep Date: 12/06/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 100   | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT221206-W1-B.MSD1, Parent Sample ID: SFT221206-W1-B.MS1

Run in Batch: SFT221206-W1-B, Run Date: 12/06/2022 11:29, Prep Date: 12/06/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 100   | 80  | 120 | 0   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT221206-W1-B.DP1, Parent Sample ID: S43021.02

Run in Batch: SFT221206-W1-B, Run Date: 12/06/2022 11:03, Prep Date: 12/06/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |



# QC Report - Batch QC Results

## Metals, Prep Batch ID: HGD-120522-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

### Blank (BLK)

Lab Sample ID: HG3-22-1205B.015.LRB

Run in Batch: HG3-22-1205B, Run Date: 12/05/2022 12:54, Prep Date: 12/05/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Mercury |       | ND   | 0.05 | ug/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: HG3-22-1205B.014.LCS

Run in Batch: HG3-22-1205B, Run Date: 12/05/2022 12:50, Prep Date: 12/05/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 102   | 85  | 115 |

### Matrix Spike (MS)

Lab Sample ID: HG3-22-1205B.019.MS, Parent Sample ID: S42957.17

Run in Batch: HG3-22-1205B, Run Date: 12/05/2022 13:07, Prep Date: 12/05/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 107   | 80  | 120 |

### Matrix Spike (MS)

Lab Sample ID: HG3-22-1205B.033.MS, Parent Sample ID: S43021.06

Run in Batch: HG3-22-1205B, Run Date: 12/05/2022 13:53, Prep Date: 12/05/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 106   | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG3-22-1205B.020.MSD, Parent Sample ID: HG3-22-1205B.019.MS

Run in Batch: HG3-22-1205B, Run Date: 12/05/2022 13:10, Prep Date: 12/05/2022, Matrix: Liquid, Dilution: 2

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 107   | 80  | 120 | 0   | 20     |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG3-22-1205B.034.MSD, Parent Sample ID: HG3-22-1205B.033.MS

Run in Batch: HG3-22-1205B, Run Date: 12/05/2022 13:56, Prep Date: 12/05/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 107   | 80  | 120 | 1   | 20     |

## QC Report - Batch QC Results

**Metals, Prep Batch ID: MTD-120822-1**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Blank (BLK)**

Lab Sample ID: MT4-22-1208A.022.LRB

Run in Batch: MT4-22-1208A, Run Date: 12/08/2022 10:44, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | Conc | RDL    | Units |
|------------|-------|------|--------|-------|
| Antimony   |       | ND   | 0.001  | mg/L  |
| Arsenic    |       | ND   | 0.0004 | mg/L  |
| Barium     |       | ND   | 0.001  | mg/L  |
| Beryllium  |       | ND   | 0.0002 | mg/L  |
| Boron      |       | ND   | 0.008  | mg/L  |
| Cadmium    |       | ND   | 0.0001 | mg/L  |
| Chromium   |       | ND   | 0.001  | mg/L  |
| Cobalt     |       | ND   | 0.001  | mg/L  |
| Lead       |       | ND   | 0.0006 | mg/L  |
| Lithium    |       | ND   | 0.001  | mg/L  |
| Molybdenum |       | ND   | 0.001  | mg/L  |
| Selenium   |       | ND   | 0.001  | mg/L  |
| Thallium   |       | ND   | 0.0004 | mg/L  |

**Blank (BLK)**

Lab Sample ID: MT4-22-1208B.015.LRB

Run in Batch: MT4-22-1208B, Run Date: 12/08/2022 13:18, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Calcium |       | ND   | 0.05 | mg/L  |

**Blank (BLK)**

Lab Sample ID: MT4-22-1208C.016.LRB

Run in Batch: MT4-22-1208C, Run Date: 12/08/2022 14:06, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL   | Units |
|---------|-------|------|-------|-------|
| Iron    |       | ND   | 0.004 | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-22-1208A.020.LCS

Run in Batch: MT4-22-1208A, Run Date: 12/08/2022 10:41, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 100   | 85  | 115 |
| Arsenic    |       | 96    | 85  | 115 |
| Barium     |       | 97    | 85  | 115 |
| Beryllium  |       | 99    | 85  | 115 |
| Boron      |       | 97    | 85  | 115 |
| Cadmium    |       | 98    | 85  | 115 |
| Chromium   |       | 99    | 85  | 115 |
| Cobalt     |       | 100   | 85  | 115 |
| Lead       |       | 94    | 85  | 115 |
| Lithium    |       | 98    | 85  | 115 |
| Molybdenum |       | 99    | 85  | 115 |
| Selenium   |       | 96    | 85  | 115 |
| Thallium   |       | 95    | 85  | 115 |

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-120822-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-22-1208B.014.LCS

Run in Batch: MT4-22-1208B, Run Date: 12/08/2022 13:17, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 101   | 85  | 115 |

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-22-1208C.015.LCS

Run in Batch: MT4-22-1208C, Run Date: 12/08/2022 14:04, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Iron    |       | 101   | 85  | 115 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1208A.045.MS, Parent Sample ID: S43198.01

Run in Batch: MT4-22-1208A, Run Date: 12/08/2022 11:54, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 100   | 75  | 125 |
| Arsenic    |       | 101   | 75  | 125 |
| Barium     |       | 101   | 75  | 125 |
| Beryllium  |       | 104   | 75  | 125 |
| Boron      |       | 102   | 75  | 125 |
| Cadmium    |       | 99    | 75  | 125 |
| Chromium   |       | 102   | 75  | 125 |
| Cobalt     |       | 98    | 75  | 125 |
| Lead       |       | 94    | 75  | 125 |
| Lithium    |       | 100   | 75  | 125 |
| Molybdenum |       | 96    | 75  | 125 |
| Selenium   |       | 99    | 75  | 125 |
| Thallium   |       | 94    | 75  | 125 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1208A.065.MS, Parent Sample ID: S43160.03

Run in Batch: MT4-22-1208A, Run Date: 12/08/2022 12:34, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 98    | 75  | 125 |
| Arsenic    |       | 107   | 75  | 125 |
| Barium     |       | 97    | 75  | 125 |
| Beryllium  |       | 104   | 75  | 125 |
| Boron      |       | 109   | 75  | 125 |
| Cadmium    |       | 96    | 75  | 125 |
| Chromium   |       | 104   | 75  | 125 |
| Cobalt     |       | 102   | 75  | 125 |
| Lead       |       | 92    | 75  | 125 |
| Lithium    |       | 102   | 75  | 125 |
| Molybdenum |       | 97    | 75  | 125 |
| Selenium   |       | 107   | 75  | 125 |
| Thallium   |       | 93    | 75  | 125 |

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-120822-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1208B.027.MS, Parent Sample ID: S43021.06

Run in Batch: MT4-22-1208B, Run Date: 12/08/2022 13:30, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 100

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 104   | 75  | 125 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1208C.038.MS, Parent Sample ID: S42136.04

Run in Batch: MT4-22-1208C, Run Date: 12/08/2022 14:33, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Iron    |       | 102   | 75  | 125 |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-1208A.046.MSD, Parent Sample ID: MT4-22-1208A.045.MS

Run in Batch: MT4-22-1208A, Run Date: 12/08/2022 11:56, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Antimony   |       | 103   | 75  | 125 | 2   | 20     |
| Arsenic    |       | 104   | 75  | 125 | 3   | 20     |
| Barium     |       | 105   | 75  | 125 | 3   | 20     |
| Beryllium  |       | 98    | 75  | 125 | 6   | 20     |
| Boron      |       | 95    | 75  | 125 | 3   | 20     |
| Cadmium    |       | 102   | 75  | 125 | 3   | 20     |
| Chromium   |       | 104   | 75  | 125 | 2   | 20     |
| Cobalt     |       | 102   | 75  | 125 | 4   | 20     |
| Lead       |       | 93    | 75  | 125 | 1   | 20     |
| Lithium    |       | 99    | 75  | 125 | 1   | 20     |
| Molybdenum |       | 100   | 75  | 125 | 4   | 20     |
| Selenium   |       | 104   | 75  | 125 | 5   | 20     |
| Thallium   |       | 94    | 75  | 125 | 0   | 20     |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-1208A.066.MSD, Parent Sample ID: MT4-22-1208A.065.MS

Run in Batch: MT4-22-1208A, Run Date: 12/08/2022 12:35, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Antimony   |       | 100   | 75  | 125 | 2   | 20     |
| Arsenic    |       | 103   | 75  | 125 | 3   | 20     |
| Barium     |       | 105   | 75  | 125 | 5   | 20     |
| Beryllium  |       | 102   | 75  | 125 | 2   | 20     |
| Boron      |       | 110   | 75  | 125 | 1   | 20     |
| Cadmium    |       | 99    | 75  | 125 | 3   | 20     |
| Chromium   |       | 103   | 75  | 125 | 0   | 20     |
| Cobalt     |       | 101   | 75  | 125 | 0   | 20     |
| Lead       |       | 91    | 75  | 125 | 0   | 20     |
| Lithium    |       | 102   | 75  | 125 | 0   | 20     |
| Molybdenum |       | 101   | 75  | 125 | 4   | 20     |
| Selenium   |       | 107   | 75  | 125 | 0   | 20     |
| Thallium   |       | 94    | 75  | 125 | 1   | 20     |

# QC Report - Batch QC Results

## Metals, Prep Batch ID: MTD-120822-1 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-1208B.028.MSD, Parent Sample ID: MT4-22-1208B.027.MS

Run in Batch: MT4-22-1208B, Run Date: 12/08/2022 13:31, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 100

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Calcium |       | 100   | 75  | 125 | 1   | 20     |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-1208C.039.MSD, Parent Sample ID: MT4-22-1208C.038.MS

Run in Batch: MT4-22-1208C, Run Date: 12/08/2022 14:34, Prep Date: 12/08/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Iron    |       | 104   | 75  | 125 | 2   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S43021

Client:TRC (TRC)

Project: RRPP Pilot Test

Submitted: 12/02/2022 10:55 Login User: MMC

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Selection                | Description  | Note   |
|--------------------------|--|--|
| <b>Sample Receiving</b>  |  |  |
| 01.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.1 |
| 02.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05.                      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| <b>Chain of Custody</b>  |  |  |
| 06.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                              |
| 07.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab                 |
| 08.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC                        |
| 09.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to:               |
| <b>Preservation</b>      |  |  |
| 10.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation           |
| 11.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs)    |
| 12.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?       |
| <b>Bottle Conditions</b> |  |  |
| 13.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                                     |
| 14.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used                |
| 15.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                                     |
| 16.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received                      |
| 17.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration                  |
| 18.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time                  |
| 19.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace          |

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: S43021 Submitted: 12/02/2022 10:55

Client: TRC (TRC)

Project: RRPP Pilot Test

Initial Preservation Check: 12/02/2022 11:22 MMC

Preservation Recheck (E200.8): N/A

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S43021.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43021.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43021.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43021.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43021.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43021.06 | 125ml Plastic HNO3    | <2        |        |          |       |



REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME **V. BUENING, S. MARKESIC**  
 COMPANY **TRC**  
 ADDRESS **1540 EISENHOWER BL**  
 CITY **ANN ARBOR** STATE **MI** ZIP CODE **48108**  
 PHONE NO. \_\_\_\_\_ CELL NO. \_\_\_\_\_ P.O. NO. **188112**  
 E-MAIL ADDRESS **vbuening@trccompanies.com** **smarkesic@trccompanies.com** QUOTE NO. \_\_\_\_\_

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

PROJECT NO./NAME **RRPP PILOT TEST** SAMPLER(S) - PLEASE PRINT/SIGN NAME **B YELEN**  
 TURNAROUND TIME REQUIRED  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER \_\_\_\_\_  
 DELIVERABLES REQUIRED  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER **TRC EDD**

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

|                 |              |           |               |                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------|--------------|-----------|---------------|----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| SO <sub>4</sub> | TOTAL AS, Fe | FERRIC Fe | APP IV METALS | APP III METALS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| X               | X            | X         | X             | X              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions

| MERIT LAB NO.<br><small>FOR LAB USE ONLY</small> | COLLECTION |      | SAMPLE TAG<br>IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | NONE | HCl | HNO <sub>3</sub> | H <sub>2</sub> SO <sub>4</sub> | NaOH | MeOH | OTHER | # Containers & Preservatives |              |           |               |                |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|------------|------|--|--------|--------------|------|-----|------------------|--------------------------------|------|------|-------|------------------------------|--------------|-----------|---------------|----------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|  | DATE       | TIME |  |        |              |      |     |                  |                                |      |      |       | SO <sub>4</sub>              | TOTAL AS, Fe | FERRIC Fe | APP IV METALS | APP III METALS |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 43021.01   | 12.1.22    | 0930 | MW-16-01                                 | GW     | 4            | 1    | 2   | 1                |                                |      |      |       |                              | X            | X         | X             | X              | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| .02  |            | 1305 | PT-TW-01                                 |        |              |      |     |                  |                                |      |      |       |                              | X            | X         | X             | X              | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| .03  |            | 1135 | PT-TW-02                                 |        |              |      |     |                  |                                |      |      |       |                              | X            | X         | X             | X              | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| .04  |            | 1225 | PT-TW-03R                                |        |              |      |     |                  |                                |      |      |       |                              | X            | X         | X             | X              | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| .05  |            | 1010 | PT-TW-04R                                |        |              |      |     |                  |                                |      |      |       |                              | X            | X         | X             | X              | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| .06  |            |      | DUP-01                                   |        |              |      |     |                  |                                |      |      |       |                              | X            | X         | X             | X              | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

RELINQUISHED BY: **B. YELEN**  Sampler DATE **12.1.22** TIME **1600**  
 RECEIVED BY: **TRC STZ.** DATE **12.1.22** TIME **1600**  
 RELINQUISHED BY: **TRC** DATE **12/2/22** TIME **800**  
 RECEIVED BY: **JAW** DATE **12/2/22** TIME **200**

RELINQUISHED BY: **Icen** DATE **12/2/22** TIME **1055**  
 RECEIVED BY: **M Cilcots** DATE **12/2/22** TIME **1055**  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 NOTES: TEMP. ON ARRIVAL **4.1**





# Analytical Laboratory Report

Report ID: S43332.01(01)+QC01

Generated on 12/16/2022

Report to

Attention: S. Markesic

TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: n/a FAX:

Email: SMarkesic@trccompanies.com

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)

Additional Contacts: Vince Buening

Report Summary

Lab Sample ID(s): S43332.01-S43332.10

Project: RRPP Pilot Test

Collected Date(s): 12/07/2022 - 12/08/2022

Submitted Date/Time: 12/12/2022 10:45

Sampled by: A. Whaley

P.O. #: 188112

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Maya Murshak

Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (10 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S43332.01 | MW-16-01   | Groundwater | 12/07/22 09:25      |
| S43332.02 | PT-TW-01   | Groundwater | 12/07/22 12:29      |
| S43332.03 | PT-TW-02   | Groundwater | 12/07/22 11:40      |
| S43332.04 | PT-TW-03R  | Groundwater | 12/07/22 11:03      |
| S43332.05 | PT-TW-04R  | Groundwater | 12/07/22 10:19      |
| S43332.06 | MW-17-14   | Groundwater | 12/08/22 09:30      |
| S43332.07 | MW-17-15   | Groundwater | 12/08/22 11:00      |
| S43332.08 | MW-17-16   | Groundwater | 12/07/22 14:07      |
| S43332.09 | MW-17-17   | Groundwater | 12/07/22 13:26      |
| S43332.10 | DUP-01     | Groundwater | 12/07/22 00:01      |



# Analytical Laboratory Report

Lab Sample ID: S43332.01

Sample Tag: MW-16-01

Collected Date/Time: 12/07/2022 09:25

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/14/22 09:09, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 1,560  | 200 | 12  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/14/22 12:20, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 480    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:53, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.024  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |

Method: E200.8, Run Date: 12/15/22 16:27, Analyst: CCM

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-----|-----|-------|----------|-----------|-------|
| Iron      | 521    | 4.0 |     | mg/L  | 200      | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.02

Sample Tag: PT-TW-01

Collected Date/Time: 12/07/2022 12:29

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/14/22 09:22, Analyst: JDP

| Parameter | Result | RL | MDL  | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|------|-------|----------|------------|-------|
| Sulfate   | 116    | 10 | 0.59 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/14/22 12:30, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.10   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:19, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.009  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 1.33   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.03

Sample Tag: PT-TW-02

Collected Date/Time: 12/07/2022 11:40

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/14/22 09:34, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 223    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/14/22 12:40, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 85     | 1.0 |     | mg/L  | 50       | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:42, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.004  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |

Method: E200.8, Run Date: 12/15/22 16:17, Analyst: CCM

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-----|-----|-------|----------|-----------|-------|
| Iron      | 92.9   | 4.0 |     | mg/L  | 200      | 7439-89-6 |       |





# Analytical Laboratory Report

Lab Sample ID: S43332.04

Sample Tag: PT-TW-03R

Collected Date/Time: 12/07/2022 11:03

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/14/22 09:47, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 1,610  | 200 | 12  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/14/22 12:45, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 295    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:51, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.041  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |

Method: E200.8, Run Date: 12/15/22 16:25, Analyst: CCM

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-----|-----|-------|----------|-----------|-------|
| Iron      | 312    | 4.0 |     | mg/L  | 200      | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.05

Sample Tag: PT-TW-04R

Collected Date/Time: 12/07/2022 10:19

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.1               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 12/14/22 10:00, Analyst: JDP**

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 481    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 12/14/22 12:50, Analyst: JKB**

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 92.5   | 5  |     | mg/L  | 250      | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 12/15/22 16:50, Analyst: CCM**

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.069  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |

**Method: E200.8, Run Date: 12/15/22 16:21, Analyst: CCM**

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-----|-----|-------|----------|-----------|-------|
| Iron      | 98.0   | 4.0 |     | mg/L  | 200      | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.06

Sample Tag: MW-17-14

Collected Date/Time: 12/08/2022 09:30

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:33, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.016        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.07

Sample Tag: MW-17-15

Collected Date/Time: 12/08/2022 11:00

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:45, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.010  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.043  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.08

Sample Tag: MW-17-16

Collected Date/Time: 12/07/2022 14:07

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:47, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.095  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.047  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.09

Sample Tag: MW-17-17

Collected Date/Time: 12/07/2022 13:26

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:49, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.011        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S43332.10

Sample Tag: DUP-01

Collected Date/Time: 12/07/2022 00:01

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.1               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.1               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.1               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 12/15/22 15:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 12/14/22 10:13, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 1,560  | 200 | 12  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 12/14/22 12:55, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 460    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 12/15/22 16:54, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.024  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |

Method: E200.8, Run Date: 12/15/22 16:29, Analyst: CCM

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-----|-----|-------|----------|-----------|-------|
| Iron      | 512    | 4.0 |     | mg/L  | 200      | 7439-89-6 |       |



# Quality Control Report

Report ID: S43332.01(01)+QC01  
Generated on 12/15/2022

Report to

Attention: S. Markesic  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a FAX:

Report Produced by

Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S43332.01-S43332.10  
Project: RRPP Pilot Test  
Submitted Date/Time: 12/12/2022 10:45  
Sampled by: A. Whaley  
P.O. #: 188112

QC Report Sections

Cover Page (Page 16)  
Analysis Summary (Pages 17-26)  
Prep Batch Summary (Page 27)  
Batch QC Results (Pages 28-30)

Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager



# QC Report - Analysis Summary

**Lab Sample ID: S43332.01**

Sample Tag: MW-16-01

Collected Date/Time: 12/07/2022 09:25

Matrix: Groundwater

COC Reference:

| Analysis                 | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH8102 | 12/14/22 12:20 | FEI221214-W1   | FEI221214-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0             | 12/14/22 09:09 | SFT221214-W1-B | SFT221214-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                    |                |                |                |      |                   |
| Arsenic                  | E200.8             | 12/15/22 16:53 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8             | 12/15/22 16:27 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S43332.02

Sample Tag: PT-TW-01

Collected Date/Time: 12/07/2022 12:29

Matrix: Groundwater

COC Reference:

| Analysis                | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|-------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b>Inorganics</b>       |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved | SM3500FeB/HACH8102 | 12/14/22 12:30 | FEI221214-W1   | FEI221214-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                 | E300.0             | 12/14/22 09:22 | SFT221214-W1-B | SFT221214-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b>Metals</b>           |                    |                |                |                |      |                   |
| Arsenic                 | E200.8             | 12/15/22 16:19 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |
| Iron                    | E200.8             | 12/15/22 16:19 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S43332.03**

Sample Tag: PT-TW-02

Collected Date/Time: 12/07/2022 11:40

Matrix: Groundwater

COC Reference:

| Analysis                 | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH8102 | 12/14/22 12:40 | FEI221214-W1   | FEI221214-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0             | 12/14/22 09:34 | SFT221214-W1-B | SFT221214-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                    |                |                |                |      |                   |
| Arsenic                  | E200.8             | 12/15/22 16:42 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8             | 12/15/22 16:17 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S43332.04**

Sample Tag: PT-TW-03R

Collected Date/Time: 12/07/2022 11:03

Matrix: Groundwater

COC Reference:

| Analysis                 | Method             | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|--------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                    |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH8102 | 12/14/22 12:45 | FEI221214-W1   | FEI221214-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0             | 12/14/22 09:47 | SFT221214-W1-B | SFT221214-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                    |                |                |                |      |                   |
| Arsenic                  | E200.8             | 12/15/22 16:51 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8             | 12/15/22 16:25 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S43332.05

Sample Tag: PT-TW-04R

Collected Date/Time: 12/07/2022 10:19

Matrix: Groundwater

COC Reference:

| Analysis                | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|-------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b>Inorganics</b>       |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:50 | FEI221214-W1   | FEI221214-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                 | E300.0            | 12/14/22 10:00 | SFT221214-W1-B | SFT221214-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b>Metals</b>           |                   |                |                |                |      |                   |
| Arsenic                 | E200.8            | 12/15/22 16:50 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |
| Iron                    | E200.8            | 12/15/22 16:21 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S43332.06

Sample Tag: MW-17-14

Collected Date/Time: 12/08/2022 09:30

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 12/15/22 16:33 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 12/15/22 16:33 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S43332.07

Sample Tag: MW-17-15

Collected Date/Time: 12/08/2022 11:00

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 12/15/22 16:45 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 12/15/22 16:45 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S43332.08

Sample Tag: MW-17-16

Collected Date/Time: 12/07/2022 14:07

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 12/15/22 16:47 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 12/15/22 16:47 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |



# QC Report - Analysis Summary

Lab Sample ID: S43332.09

Sample Tag: MW-17-17

Collected Date/Time: 12/07/2022 13:26

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 12/15/22 16:49 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 12/15/22 16:49 | MT4-22-1215C | MTD-121522-9 | No   | BLK/LCS/MS/MSD |

## QC Report - Analysis Summary

**Lab Sample ID: S43332.10**

Sample Tag: DUP-01

Collected Date/Time: 12/07/2022 00:01

Matrix: Groundwater

COC Reference:

| Analysis                 | Method            | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|-------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                   |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACH810 | 12/14/22 12:55 | FEI221214-W1   | FEI221214-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0            | 12/14/22 10:13 | SFT221214-W1-B | SFT221214-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                   |                |                |                |      |                   |
| Arsenic                  | E200.8            | 12/15/22 16:54 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8            | 12/15/22 16:29 | MT4-22-1215C   | MTD-121522-9   | No   | BLK/LCS/MS/MSD    |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI221214-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method            | Run Date/Time  | Batch ID     |
|-----------|-------------------------|-------------------|----------------|--------------|
| S43332.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:20 | FEI221214-W1 |
| S43332.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:30 | FEI221214-W1 |
| S43332.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:40 | FEI221214-W1 |
| S43332.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:45 | FEI221214-W1 |
| S43332.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:50 | FEI221214-W1 |
| S43332.10 | Ferrous Iron, Dissolved | SM3500FeB/HACH810 | 12/14/22 12:55 | FEI221214-W1 |

### Inorganics, Prep Batch ID: SFT221214-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S43332.01 | Sulfate  | E300.0 | 12/14/22 09:09 | SFT221214-W1-B |
| S43332.02 | Sulfate  | E300.0 | 12/14/22 09:22 | SFT221214-W1-B |
| S43332.03 | Sulfate  | E300.0 | 12/14/22 09:34 | SFT221214-W1-B |
| S43332.04 | Sulfate  | E300.0 | 12/14/22 09:47 | SFT221214-W1-B |
| S43332.05 | Sulfate  | E300.0 | 12/14/22 10:00 | SFT221214-W1-B |
| S43332.10 | Sulfate  | E300.0 | 12/14/22 10:13 | SFT221214-W1-B |

### Metals, Prep Batch ID: MTD-121522-9

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S43332.01 | Arsenic  | E200.8 | 12/15/22 16:53 | MT4-22-1215C |
| S43332.01 | Iron     | E200.8 | 12/15/22 16:27 | MT4-22-1215C |
| S43332.02 | Arsenic  | E200.8 | 12/15/22 16:19 | MT4-22-1215C |
| S43332.02 | Iron     | E200.8 | 12/15/22 16:19 | MT4-22-1215C |
| S43332.03 | Arsenic  | E200.8 | 12/15/22 16:42 | MT4-22-1215C |
| S43332.03 | Iron     | E200.8 | 12/15/22 16:17 | MT4-22-1215C |
| S43332.04 | Arsenic  | E200.8 | 12/15/22 16:51 | MT4-22-1215C |
| S43332.04 | Iron     | E200.8 | 12/15/22 16:25 | MT4-22-1215C |
| S43332.05 | Arsenic  | E200.8 | 12/15/22 16:50 | MT4-22-1215C |
| S43332.05 | Iron     | E200.8 | 12/15/22 16:21 | MT4-22-1215C |
| S43332.06 | Arsenic  | E200.8 | 12/15/22 16:33 | MT4-22-1215C |
| S43332.06 | Lithium  | E200.8 | 12/15/22 16:33 | MT4-22-1215C |
| S43332.07 | Arsenic  | E200.8 | 12/15/22 16:45 | MT4-22-1215C |
| S43332.07 | Lithium  | E200.8 | 12/15/22 16:45 | MT4-22-1215C |
| S43332.08 | Arsenic  | E200.8 | 12/15/22 16:47 | MT4-22-1215C |
| S43332.08 | Lithium  | E200.8 | 12/15/22 16:47 | MT4-22-1215C |
| S43332.09 | Arsenic  | E200.8 | 12/15/22 16:49 | MT4-22-1215C |
| S43332.09 | Lithium  | E200.8 | 12/15/22 16:49 | MT4-22-1215C |
| S43332.10 | Arsenic  | E200.8 | 12/15/22 16:54 | MT4-22-1215C |
| S43332.10 | Iron     | E200.8 | 12/15/22 16:29 | MT4-22-1215C |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI221214-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI221214-W1.LRB1

Run in Batch: FEI221214-W1, Run Date: 12/14/2022 12:00, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI221214-W1.LCS1

Run in Batch: FEI221214-W1, Run Date: 12/14/2022 12:15, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 98    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI221214-W1.MS1, Parent Sample ID: S43332.01

Run in Batch: FEI221214-W1, Run Date: 12/14/2022 12:35, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 110   | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI221214-W1.DP1, Parent Sample ID: S43332.01

Run in Batch: FEI221214-W1, Run Date: 12/14/2022 12:25, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 250

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | 3   | 15     |

**QC Report - Batch QC Results**

**Inorganics, Prep Batch ID: SFT221214-W1-B**

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

**Blank (BLK)**

Lab Sample ID: SFT221214-W1-B.LRB1

Run in Batch: SFT221214-W1-B, Run Date: 12/14/2022 08:31, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: SFT221214-W1-B.LCS1

Run in Batch: SFT221214-W1-B, Run Date: 12/14/2022 08:56, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 102   | 90  | 110 |

**Matrix Spike (MS)**

Lab Sample ID: SFT221214-W1-B.MS1, Parent Sample ID: S43332.02

Run in Batch: SFT221214-W1-B, Run Date: 12/14/2022 10:39, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 104   | 80  | 120 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: SFT221214-W1-B.MSD1, Parent Sample ID: SFT221214-W1-B.MS1

Run in Batch: SFT221214-W1-B, Run Date: 12/14/2022 10:52, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 104   | 80  | 120 | 0   | 15     |

**Duplicate (DUP)**

Lab Sample ID: SFT221214-W1-B.DP1, Parent Sample ID: S43332.02

Run in Batch: SFT221214-W1-B, Run Date: 12/14/2022 10:26, Prep Date: 12/14/2022, Matrix: Liquid, Dilution: 10

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-121522-9

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Blank (BLK)

Lab Sample ID: MT4-22-1215C.019.LRB

Run in Batch: MT4-22-1215C, Run Date: 12/15/2022 16:13, Prep Date: 12/15/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL    | Units |
|---------|-------|------|--------|-------|
| Arsenic |       | ND   | 0.0004 | mg/L  |
| Iron    |       | ND   | 0.004  | mg/L  |
| Lithium |       | ND   | 0.001  | mg/L  |

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-22-1215C.018.LCS

Run in Batch: MT4-22-1215C, Run Date: 12/15/2022 16:12, Prep Date: 12/15/2022, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 96    | 85  | 115 |
| Iron    |       | 102   | 85  | 115 |
| Lithium |       | 95    | 85  | 115 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1215C.034.MS, Parent Sample ID: S43332.02

Run in Batch: MT4-22-1215C, Run Date: 12/15/2022 16:36, Prep Date: 12/15/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 101   | 75  | 125 |
| Iron    |       | 108   | 75  | 125 |
| Lithium |       | 110   | 75  | 125 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-22-1215C.050.MS, Parent Sample ID: S43332.02

Run in Batch: MT4-22-1215C, Run Date: 12/15/2022 16:57, Prep Date: 12/15/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 103   | 75  | 125 |
| Lithium |       | 109   | 75  | 125 |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-1215C.035.MSD, Parent Sample ID: MT4-22-1215C.034.MS

Run in Batch: MT4-22-1215C, Run Date: 12/15/2022 16:37, Prep Date: 12/15/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 102   | 75  | 125 | 0   | 20     |
| Iron    |       | 96    | 75  | 125 | 2   | 20     |
| Lithium |       | 110   | 75  | 125 | 0   | 20     |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-1215C.051.MSD, Parent Sample ID: MT4-22-1215C.050.MS

Run in Batch: MT4-22-1215C, Run Date: 12/15/2022 16:58, Prep Date: 12/15/2022, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 104   | 75  | 125 | 1   | 20     |
| Lithium |       | 102   | 75  | 125 | 6   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S43332

Client:TRC (TRC)

Project: RRPP Pilot Test

Submitted: 12/12/2022 10:45 Login User: MMC

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Selection                | Description  | Note   |
|--------------------------|--|--|
| <b>Sample Receiving</b>  |  |  |
| 01.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 5.1 |
| 02.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05.                      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| <b>Chain of Custody</b>  |  |  |
| 06.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                              |
| 07.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab                 |
| 08.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC                        |
| 09.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to:               |
| <b>Preservation</b>      |  |  |
| 10.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation           |
| 11.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs)    |
| 12.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?       |
| <b>Bottle Conditions</b> |  |  |
| 13.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                                     |
| 14.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used                |
| 15.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                                     |
| 16.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received                      |
| 17.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration                  |
| 18.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time                  |
| 19.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace          |

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: S43332 Submitted: 12/12/2022 10:45

Client: TRC (TRC)

Project: RRPP Pilot Test

Initial Preservation Check: 12/12/2022 11:23 MMC

Preservation Recheck (E200.8): N/A

Attention: S. Markesic

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: n/a

FAX:

Email: SMarkesic@trccompanies.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S43332.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.06 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.07 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.08 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.09 | 125ml Plastic HNO3    | <2        |        |          |       |
| S43332.10 | 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 1

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME Vince Buening, Steve Markesic  
 COMPANY TRC  
 ADDRESS 1540 Eisenhower Place  
 CITY Ann Arbor STATE MI ZIP CODE 48108  
 PHONE NO. \_\_\_\_\_ FAX NO. \_\_\_\_\_ P.O. NO. 188112  
 E-MAIL ADDRESS vbuening and smarkesic @trccompanies.com 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 RRPP Pilot Test SAMPLER(S) - PLEASE PRINT/SIGN NAME A. WHALEY  
 TURNAROUND TIME REQUIRED  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER \_\_\_\_\_  
 DELIVERABLES REQUIRED  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER TRC EDD

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

# Containers & Preservatives  
 Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions \_\_\_\_\_

| MERIT LAB NO.<br><small>FOR LAB USE ONLY</small> | YEAR    |      | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | NONE | HCl | HNO <sub>3</sub> | H <sub>2</sub> SO <sub>4</sub> | NaOH | MeOH | OTHER | Sulfate 300.0 | Total As, Fe 6020A | Ferrous Fe 3500-Fe | Total As, Li 6020A |   |  |  |  |  |  |  |  |
|--|---------|------|---------------------------------------|--------|--------------|------|-----|------------------|--------------------------------|------|------|-------|---------------|--------------------|--------------------|--------------------|---|--|--|--|--|--|--|--|
|  | DATE    | TIME |                                       |        |              |      |     |                  |                                |      |      |       |               |                    |                    |                    |   |  |  |  |  |  |  |  |
| 43332.01   | 12-7-22 | 0925 | MW-16-01                              | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | ✓             | ✓                  | ✓                  |                    |   |  |  |  |  |  |  |  |
| .02  | 12-7-22 | 1229 | PT-TW-01                              | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | ✓             | ✓                  | ✓                  |                    |   |  |  |  |  |  |  |  |
| .03  | 12.7.22 | 1140 | PT-TW-02                              | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | ✓             | ✓                  | ✓                  |                    |   |  |  |  |  |  |  |  |
| .04  | 12-7-22 | 1103 | PT-TW-03R                             | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | ✓             | ✓                  | ✓                  |                    |   |  |  |  |  |  |  |  |
| .05  | 12.7.22 | 1049 | PT-TW-04R                             | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | ✓             | ✓                  | ✓                  |                    |   |  |  |  |  |  |  |  |
| .06  | 12.8.22 | 0930 | MW-17-14                              | GW     | 1            |      |     | 1                |                                |      |      |       |               |                    |                    |                    | ✓ |  |  |  |  |  |  |  |
| .07  | 12.8.22 | 4100 | MW-17-15                              | GW     | 1            |      |     | 1                |                                |      |      |       |               |                    |                    |                    | ✓ |  |  |  |  |  |  |  |
| .08  | 12.7.22 | 1407 | MW-17-16                              | GW     | 1            |      |     | 1                |                                |      |      |       |               |                    |                    |                    | ✓ |  |  |  |  |  |  |  |
| .09  | 12.7.22 | 1326 | MW-17-17                              | GW     | 1            |      |     | 1                |                                |      |      |       |               |                    |                    |                    | ✓ |  |  |  |  |  |  |  |
| .10  | 12-7-22 | -    | DUP-01                                | GW     | 4            | 1    | 2   | 1                |                                |      |      |       | ✓             | ✓                  | ✓                  |                    |   |  |  |  |  |  |  |  |

RELINQUISHED BY: A. Whaley  Sampler  
 SIGNATURE/Organization A. Whaley TRC DATE 12-8-22 TIME 1720  
 RECEIVED BY: Isabel  
 SIGNATURE/Organization Isabel DATE 12/12/22 TIME 800

RELINQUISHED BY: Isabel  
 SIGNATURE/Organization Isabel DATE 12/12/22 TIME 1045  
 RECEIVED BY: M. Dilworth  
 SIGNATURE/Organization M. Dilworth DATE 12/12/22 TIME 1045

SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 NOTES: TEMP. ON ARRIVAL 5.1

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



# Analytical Laboratory Report

Report ID: S44039.01(01)+QC01  
Generated on 01/18/2023

**Report to**

---

Attention: Vince Buening  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: 734-585-7812 FAX:  
Email: vbuening@trcsolutions.com

**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)

Additional Contacts: Brian Yelen, Dave McKenzie, Kristin Lowery

**Report Summary**

---

Lab Sample ID(s): S44039.01-S44039.06  
Project: RRPP Pilot Test  
Collected Date(s): 01/04/2023  
Submitted Date/Time: 01/06/2023 10:20  
Sampled by: A. Whaley  
P.O. #: 188112

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- QC Report (Pages 12-22)

Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (6 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S44039.01 | MW-16-01   | Groundwater | 01/04/23 09:42      |
| S44039.02 | PT-TW-01   | Groundwater | 01/04/23 13:08      |
| S44039.03 | PT-TW-02   | Groundwater | 01/04/23 10:30      |
| S44039.04 | PT-TW-03R  | Groundwater | 01/04/23 12:10      |
| S44039.05 | PT-TW-04R  | Groundwater | 01/04/23 11:30      |
| S44039.06 | DUP-01     | Groundwater | 01/04/23 00:01      |



# Analytical Laboratory Report

Lab Sample ID: S44039.01

Sample Tag: MW-16-01

Collected Date/Time: 01/04/2023 09:42

Matrix: Groundwater

COC Reference: 158650

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 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 |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 01/11/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 01/09/23 11:53, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 421    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 01/17/23 12:20, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 105    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 01/11/23 11:21, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.016  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |

Method: E200.8, Run Date: 01/11/23 11:25, Analyst: CCM

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-----|-----|-------|----------|-----------|-------|
| Iron      | 117    | 1.0 |     | mg/L  | 250      | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S44039.02

Sample Tag: PT-TW-01

Collected Date/Time: 01/04/2023 13:08

Matrix: Groundwater

COC Reference: 158650

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 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 |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 01/11/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 01/09/23 11:02, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 181    | 10 | 1.0 | mg/L  | 10       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 01/17/23 12:30, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.60   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 01/11/23 11:27, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.006  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 1.75   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |





# Analytical Laboratory Report

Lab Sample ID: S44039.03

Sample Tag: PT-TW-02

Collected Date/Time: 01/04/2023 10:30

Matrix: Groundwater

COC Reference: 158650

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 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 |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 01/11/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 01/09/23 11:13, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 368    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 01/17/23 12:40, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 62.5   | 2.5 |     | mg/L  | 125      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 01/11/23 11:30, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 64.8         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S44039.04

Sample Tag: PT-TW-03R

Collected Date/Time: 01/04/2023 12:10

Matrix: Groundwater

COC Reference: 158650

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 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 |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 01/11/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 01/09/23 11:23, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 854    | 200 | 21  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 01/17/23 12:45, Analyst: JKB

| Parameter                | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 118    | 5  |     | mg/L  | 250      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 01/11/23 11:35, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.015  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 125    | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S44039.05

Sample Tag: PT-TW-04R

Collected Date/Time: 01/04/2023 11:30

Matrix: Groundwater

COC Reference: 158650

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 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 |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 01/11/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 01/09/23 11:33, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 154    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 01/17/23 12:50, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 50     | 2.5 |     | mg/L  | 125      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 01/11/23 11:41, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.046  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 54.8   | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Analytical Laboratory Report

Lab Sample ID: S44039.06

Sample Tag: DUP-01

Collected Date/Time: 01/04/2023 00:01

Matrix: Groundwater

COC Reference: 158650

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 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 |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 01/11/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 01/09/23 13:03, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 418    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 01/17/23 12:55, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 106    | 2.5 |     | mg/L  | 125      | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 01/11/23 11:45, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.018  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Iron      | 117    | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |



# Quality Control Report

Report ID: S44039.01(01)+QC01

Generated on 01/17/2023

Report to

Attention: Vince Buening

TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: 734-585-7812 FAX:

Report Produced by

Merit Laboratories

2680 East Lansing Drive

East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S44039.01-S44039.06

Project: RRPP Pilot Test

Submitted Date/Time: 01/06/2023 10:20

Sampled by: A. Whaley

P.O. #: 188112

QC Report Sections

Cover Page (Page 12)

Analysis Summary (Pages 13-18)

Prep Batch Summary (Page 19)

Batch QC Results (Pages 20-22)

Report Flag Descriptions

\*: QC result is outside of indicated control limits

W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball

Quality Assurance Manager

# QC Report - Analysis Summary

**Lab Sample ID: S44039.01**

Sample Tag: MW-16-01

Collected Date/Time: 01/04/2023 09:42

Matrix: Groundwater

COC Reference: 158650

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 01/17/23 12:20 | FEI230117-W1   | FEI230117-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 01/09/23 11:53 | SFT230109-W1-A | SFT230109-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 01/11/23 11:21 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 01/11/23 11:25 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S44039.02**

Sample Tag: PT-TW-01

Collected Date/Time: 01/04/2023 13:08

Matrix: Groundwater

COC Reference: 158650

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 01/17/23 12:30 | FEI230117-W1   | FEI230117-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 01/09/23 11:02 | SFT230109-W1-A | SFT230109-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 01/11/23 11:27 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 01/11/23 11:27 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S44039.03**

Sample Tag: PT-TW-02

Collected Date/Time: 01/04/2023 10:30

Matrix: Groundwater

COC Reference: 158650

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 01/17/23 12:40 | FEI230117-W1   | FEI230117-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 01/09/23 11:13 | SFT230109-W1-A | SFT230109-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 01/11/23 11:30 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 01/11/23 11:30 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |



# QC Report - Analysis Summary

**Lab Sample ID: S44039.04**

Sample Tag: PT-TW-03R

Collected Date/Time: 01/04/2023 12:10

Matrix: Groundwater

COC Reference: 158650

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 01/17/23 12:45 | FEI230117-W1   | FEI230117-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 01/09/23 11:23 | SFT230109-W1-A | SFT230109-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 01/11/23 11:35 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 01/11/23 11:35 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S44039.05**

Sample Tag: PT-TW-04R

Collected Date/Time: 01/04/2023 11:30

Matrix: Groundwater

COC Reference: 158650

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 01/17/23 12:50 | FEI230117-W1   | FEI230117-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 01/09/23 11:33 | SFT230109-W1-A | SFT230109-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 01/11/23 11:41 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 01/11/23 11:41 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S44039.06**

Sample Tag: DUP-01

Collected Date/Time: 01/04/2023 00:01

Matrix: Groundwater

COC Reference: 158650

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 01/17/23 12:55 | FEI230117-W1   | FEI230117-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 01/09/23 13:03 | SFT230109-W1-A | SFT230109-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 01/11/23 11:45 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 01/11/23 11:45 | MT4-23-0111A   | MTD-011123-2   | No   | BLK/LCS/MS/MSD    |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI230117-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method         | Run Date/Time  | Batch ID     |
|-----------|-------------------------|----------------|----------------|--------------|
| S44039.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 01/17/23 12:20 | FEI230117-W1 |
| S44039.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 01/17/23 12:30 | FEI230117-W1 |
| S44039.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 01/17/23 12:40 | FEI230117-W1 |
| S44039.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 01/17/23 12:45 | FEI230117-W1 |
| S44039.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 01/17/23 12:50 | FEI230117-W1 |
| S44039.06 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 01/17/23 12:55 | FEI230117-W1 |

### Inorganics, Prep Batch ID: SFT230109-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S44039.01 | Sulfate  | E300.0 | 01/09/23 11:53 | SFT230109-W1-A |
| S44039.02 | Sulfate  | E300.0 | 01/09/23 11:02 | SFT230109-W1-A |
| S44039.03 | Sulfate  | E300.0 | 01/09/23 11:13 | SFT230109-W1-A |
| S44039.04 | Sulfate  | E300.0 | 01/09/23 11:23 | SFT230109-W1-A |
| S44039.05 | Sulfate  | E300.0 | 01/09/23 11:33 | SFT230109-W1-A |
| S44039.06 | Sulfate  | E300.0 | 01/09/23 13:03 | SFT230109-W1-A |

### Metals, Prep Batch ID: MTD-011123-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S44039.01 | Arsenic  | E200.8 | 01/11/23 11:21 | MT4-23-0111A |
| S44039.01 | Iron     | E200.8 | 01/11/23 11:25 | MT4-23-0111A |
| S44039.02 | Arsenic  | E200.8 | 01/11/23 11:27 | MT4-23-0111A |
| S44039.02 | Iron     | E200.8 | 01/11/23 11:27 | MT4-23-0111A |
| S44039.03 | Arsenic  | E200.8 | 01/11/23 11:30 | MT4-23-0111A |
| S44039.03 | Iron     | E200.8 | 01/11/23 11:30 | MT4-23-0111A |
| S44039.04 | Arsenic  | E200.8 | 01/11/23 11:35 | MT4-23-0111A |
| S44039.04 | Iron     | E200.8 | 01/11/23 11:35 | MT4-23-0111A |
| S44039.05 | Arsenic  | E200.8 | 01/11/23 11:41 | MT4-23-0111A |
| S44039.05 | Iron     | E200.8 | 01/11/23 11:41 | MT4-23-0111A |
| S44039.06 | Arsenic  | E200.8 | 01/11/23 11:45 | MT4-23-0111A |
| S44039.06 | Iron     | E200.8 | 01/11/23 11:45 | MT4-23-0111A |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI230117-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI230117-W1.LRB1

Run in Batch: FEI230117-W1, Run Date: 01/17/2023 12:00, Prep Date: 01/17/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI230117-W1.LCS1

Run in Batch: FEI230117-W1, Run Date: 01/17/2023 12:15, Prep Date: 01/17/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 102   | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI230117-W1.MS1, Parent Sample ID: S44039.02

Run in Batch: FEI230117-W1, Run Date: 01/17/2023 12:35, Prep Date: 01/17/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 102   | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI230117-W1.DP1, Parent Sample ID: S44039.01

Run in Batch: FEI230117-W1, Run Date: 01/17/2023 12:25, Prep Date: 01/17/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | 5   | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT230109-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT230109-W1-A.LRB1

Run in Batch: SFT230109-W1-A, Run Date: 01/09/2023 10:10, Prep Date: 01/09/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT230109-W1-A.LCS1

Run in Batch: SFT230109-W1-A, Run Date: 01/09/2023 10:32, Prep Date: 01/09/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 97    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT230109-W1-A.MS1, Parent Sample ID: S44039.01

Run in Batch: SFT230109-W1-A, Run Date: 01/09/2023 12:13, Prep Date: 01/09/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 100   | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT230109-W1-A.MSD1, Parent Sample ID: SFT230109-W1-A.MS1

Run in Batch: SFT230109-W1-A, Run Date: 01/09/2023 12:23, Prep Date: 01/09/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 100   | 80  | 120 | 0   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT230109-W1-A.DP1, Parent Sample ID: S44039.01

Run in Batch: SFT230109-W1-A, Run Date: 01/09/2023 12:03, Prep Date: 01/09/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |

## QC Report - Batch QC Results

**Metals, Prep Batch ID: MTD-011123-2**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Blank (BLK)**

Lab Sample ID: MT4-23-0111A.020.LRB

Run in Batch: MT4-23-0111A, Run Date: 01/11/2023 11:15, Prep Date: 01/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL    | Units |
|---------|-------|------|--------|-------|
| Arsenic |       | ND   | 0.0004 | mg/L  |
| Iron    |       | ND   | 0.004  | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-23-0111A.019.LCS

Run in Batch: MT4-23-0111A, Run Date: 01/11/2023 11:11, Prep Date: 01/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 100   | 85  | 115 |
| Iron    |       | 103   | 85  | 115 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0111A.043.MS, Parent Sample ID: S44186.03

Run in Batch: MT4-23-0111A, Run Date: 01/11/2023 12:00, Prep Date: 01/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 102   | 75  | 125 |
| Iron    |       | 93    | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0111A.066.MS, Parent Sample ID: S44158.10

Run in Batch: MT4-23-0111A, Run Date: 01/11/2023 12:29, Prep Date: 01/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 106   | 75  | 125 |
| Iron    |       | 96    | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0111A.044.MSD, Parent Sample ID: MT4-23-0111A.043.MS

Run in Batch: MT4-23-0111A, Run Date: 01/11/2023 12:02, Prep Date: 01/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 107   | 75  | 125 | 5   | 20     |
| Iron    |       | 96    | 75  | 125 | 2   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0111A.067.MSD, Parent Sample ID: MT4-23-0111A.066.MS

Run in Batch: MT4-23-0111A, Run Date: 01/11/2023 12:31, Prep Date: 01/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 107   | 75  | 125 | 1   | 20     |
| Iron    |       | 99    | 75  | 125 | 2   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S44039

Client:TRC (TRC)

Project: RRPP Pilot Test

Submitted:01/06/2023 10:20 Login User: MMC

Attention: Vince Buening

Address: TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: 734-585-7812

FAX:

Email: vbuening@trcsolutions.com

| Selection | Description | Note |
|-----------|-------------|------|
|-----------|-------------|------|

## Sample Receiving

- |     |  |  |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 5.4 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

## Chain of Custody

- |     |  |  |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab   |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC          |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

## Preservation

- |     |  |   |
|-----|--|---|
| 10. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation        |
| 11. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?    |

## Bottle Conditions

- |     |  |   |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                            |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used       |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                            |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received             |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration         |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time         |
| 19. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

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: S44039 Submitted: 01/06/2023 10:20

Client: TRC (TRC)

Project: RRPP Pilot Test

Initial Preservation Check: 01/06/2023 11:13 MMC

Preservation Recheck (E200.8): N/A

Attention: Vince Buening

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: 734-585-7812

FAX:

Email: [vbuening@trcsolutions.com](mailto:vbuening@trcsolutions.com)

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S44039.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S44039.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S44039.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S44039.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S44039.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S44039.06 | 125ml Plastic HNO3    | <2        |        |          |       |





# Analytical Laboratory Report

Report ID: S45255.01(01)+QC01  
Generated on 02/15/2023

## Report to

---

Attention: Vince Buening  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: 734-585-7812 FAX:  
Email: vbuening@trcsolutions.com

Additional Contacts: Brian Yelen, Dave McKenzie, Kristin Lowery

## Report produced by

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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): S45255.01-S45255.10  
Project: RRPP Pilot Testing  
Collected Date(s): 02/09/2023 - 02/10/2023  
Submitted Date/Time: 02/13/2023 11:00  
Sampled by: A. Whaley  
P.O. #: 188112

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (10 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S45255.01 | MW-16-01   | Groundwater | 02/09/23 13:40      |
| S45255.02 | PT-TW-01   | Groundwater | 02/09/23 12:30      |
| S45255.03 | PT-TW-02   | Groundwater | 02/09/23 11:02      |
| S45255.04 | PT-TW-03R  | Groundwater | 02/09/23 10:15      |
| S45255.05 | PT-TW-04R  | Groundwater | 02/09/23 11:50      |
| S45255.06 | MW-17-14   | Groundwater | 02/10/23 11:20      |
| S45255.07 | MW-17-15   | Groundwater | 02/10/23 12:30      |
| S45255.08 | MW-17-16   | Groundwater | 02/10/23 10:45      |
| S45255.09 | MW-17-17   | Groundwater | 02/10/23 09:50      |
| S45255.10 | DUP-01     | Groundwater | 02/09/23 00:01      |



# Analytical Laboratory Report

Lab Sample ID: S45255.01

Sample Tag: MW-16-01

Collected Date/Time: 02/09/2023 13:40

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 02/14/23 09:21, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 269    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 02/15/23 07:20, Analyst: JDP

| Parameter                | Result | RL   | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|------|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 16.2   | 0.50 |     | mg/L  | 25       | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 02/14/23 13:34, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 122    | 0.50 |     | mg/L  | 5        | 7440-70-2 |       |

Method: E200.8, Run Date: 02/14/23 11:19, Analyst: CCM

| Parameter  | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic    | 0.008        | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Barium     | 0.085        | 0.005 |     | mg/L  | 5        | 7440-39-3 |       |
| Boron      | 1.12         | 0.04  |     | mg/L  | 5        | 7440-42-8 |       |
| Iron       | 17.4         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |
| Lithium*   | 0.066        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005 |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005 |     | mg/L  | 5        | 7782-49-2 |       |





# Analytical Laboratory Report

Lab Sample ID: S45255.02

Sample Tag: PT-TW-01

Collected Date/Time: 02/09/2023 12:30

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 02/14/23 10:21, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 263    | 25 | 2.6 | mg/L  | 25       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 02/15/23 07:25, Analyst: JDP

| Parameter                | Result | RL   | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|------|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.50   | 0.25 |     | mg/L  | 12.5     | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 02/14/23 13:36, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 123    | 0.50 |     | mg/L  | 5        | 7440-70-2 |       |

Method: E200.8, Run Date: 02/14/23 11:22, Analyst: CCM

| Parameter  | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic    | 0.011        | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Barium     | 0.209        | 0.005 |     | mg/L  | 5        | 7440-39-3 |       |
| Boron      | 1.32         | 0.04  |     | mg/L  | 5        | 7440-42-8 |       |
| Iron       | 1.63         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |
| Lithium*   | 0.042        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | 0.006        | 0.005 |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005 |     | mg/L  | 5        | 7782-49-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.03

Sample Tag: PT-TW-02

Collected Date/Time: 02/09/2023 11:02

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.0               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 02/14/23 09:41, Analyst: JDP**

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 246    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 02/15/23 07:40, Analyst: JDP**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 27.7   | 1.0 |     | mg/L  | 50       | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 02/14/23 13:37, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 161    | 0.50 |     | mg/L  | 5        | 7440-70-2 |       |

**Method: E200.8, Run Date: 02/14/23 11:25, Analyst: CCM**

| Parameter  | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic    | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Barium     | 0.422        | 0.005 |     | mg/L  | 5        | 7440-39-3 |       |
| Boron      | 1.18         | 0.04  |     | mg/L  | 5        | 7440-42-8 |       |
| Iron       | 29.9         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |
| Lithium*   | 0.067        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005 |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005 |     | mg/L  | 5        | 7782-49-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.04

Sample Tag: PT-TW-03R

Collected Date/Time: 02/09/2023 10:15

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 02/14/23 09:51, Analyst: JDP

| Parameter | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|-----|-----|-------|----------|------------|-------|
| Sulfate   | 681    | 200 | 21  | mg/L  | 200      | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 02/15/23 07:45, Analyst: JDP

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 39.9   | 1.0 |     | mg/L  | 50       | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 02/14/23 13:39, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 242    | 0.50 |     | mg/L  | 5        | 7440-70-2 |       |

Method: E200.8, Run Date: 02/14/23 11:29, Analyst: CCM

| Parameter  | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic    | 0.017        | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Barium     | 0.085        | 0.005 |     | mg/L  | 5        | 7440-39-3 |       |
| Boron      | 0.72         | 0.04  |     | mg/L  | 5        | 7440-42-8 |       |
| Iron       | 41.5         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |
| Lithium*   | 0.052        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005 |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005 |     | mg/L  | 5        | 7782-49-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.05

Sample Tag: PT-TW-04R

Collected Date/Time: 02/09/2023 11:50

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 02/14/23 10:01, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 98     | 25 | 2.6 | mg/L  | 25       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 02/15/23 07:50, Analyst: JDP

| Parameter                | Result | RL   | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|------|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 18.5   | 0.50 |     | mg/L  | 25       | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 02/14/23 13:40, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 151    | 0.50 |     | mg/L  | 5        | 7440-70-2 |       |

Method: E200.8, Run Date: 02/14/23 11:33, Analyst: CCM

| Parameter  | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic    | 0.044        | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Barium     | 0.280        | 0.005 |     | mg/L  | 5        | 7440-39-3 |       |
| Boron      | 0.93         | 0.04  |     | mg/L  | 5        | 7440-42-8 |       |
| Iron       | 19.9         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |
| Lithium*   | 0.065        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005 |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005 |     | mg/L  | 5        | 7782-49-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.06

Sample Tag: MW-17-14

Collected Date/Time: 02/10/2023 11:20

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 02/14/23 11:36, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.017        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.07

Sample Tag: MW-17-15

Collected Date/Time: 02/10/2023 12:30

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 02/14/23 11:45, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.006  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.031  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.08

Sample Tag: MW-17-16

Collected Date/Time: 02/10/2023 10:45

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 02/14/23 11:48, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.095  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.042  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S45255.09

Sample Tag: MW-17-17

Collected Date/Time: 02/10/2023 09:50

Matrix: Groundwater

COC Reference:

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

### Metals

Method: E200.8, Run Date: 02/14/23 11:51, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.012        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |





# Analytical Laboratory Report

Lab Sample ID: S45255.10

Sample Tag: DUP-01

Collected Date/Time: 02/09/2023 00:01

Matrix: Groundwater

COC Reference:

Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 5.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 5.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 5.0               | IR            |

**Extraction / Prep.**

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 02/14/23 10:00 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 02/14/23 10:11, Analyst: JDP**

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 273    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 02/15/23 07:55, Analyst: JDP**

| Parameter                | Result | RL   | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|------|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 15.7   | 0.50 |     | mg/L  | 25       | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 02/14/23 13:48, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 121    | 0.50 |     | mg/L  | 5        | 7440-70-2 |       |

**Method: E200.8, Run Date: 02/14/23 11:53, Analyst: CCM**

| Parameter  | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic    | 0.008        | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Barium     | 0.083        | 0.005 |     | mg/L  | 5        | 7440-39-3 |       |
| Boron      | 1.09         | 0.04  |     | mg/L  | 5        | 7440-42-8 |       |
| Iron       | 16.7         | 0.02  |     | mg/L  | 5        | 7439-89-6 |       |
| Lithium*   | 0.062        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005 |     | mg/L  | 5        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005 |     | mg/L  | 5        | 7782-49-2 |       |



# Quality Control Report

Report ID: S45255.01(01)+QC01  
Generated on 02/15/2023

Report to  
Attention: Vince Buening  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108  
  
Phone: 734-585-7812 FAX:

Report Produced by  
Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823  
  
Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary  
Lab Sample ID(s): S45255.01-S45255.10  
Project: RRPP Pilot Testing  
Submitted Date/Time: 02/13/2023 11:00  
Sampled by: A. Whaley  
P.O. #: 188112

QC Report Sections  
Cover Page (Page 16)  
Analysis Summary (Pages 17-26)  
Prep Batch Summary (Pages 27-28)  
Batch QC Results (Pages 29-32)

Report Flag Descriptions  
\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

## QC Report - Analysis Summary

**Lab Sample ID: S45255.01**

Sample Tag: MW-16-01

Collected Date/Time: 02/09/2023 13:40

Matrix: Groundwater

COC Reference:

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 02/15/23 07:20 | FEI230215-W1   | FEI230215-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 02/14/23 09:21 | SFT230214-W1-A | SFT230214-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8           | 02/14/23 13:34 | MT4-23-0214B   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8           | 02/14/23 11:19 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S45255.02**

Sample Tag: PT-TW-01

Collected Date/Time: 02/09/2023 12:30

Matrix: Groundwater

COC Reference:

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 02/15/23 07:25 | FEI230215-W1   | FEI230215-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 02/14/23 10:21 | SFT230214-W1-A | SFT230214-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8           | 02/14/23 13:36 | MT4-23-0214B   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8           | 02/14/23 11:22 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S45255.03**

Sample Tag: PT-TW-02

Collected Date/Time: 02/09/2023 11:02

Matrix: Groundwater

COC Reference:

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 02/15/23 07:40 | FEI230215-W1   | FEI230215-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 02/14/23 09:41 | SFT230214-W1-A | SFT230214-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8           | 02/14/23 13:37 | MT4-23-0214B   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8           | 02/14/23 11:25 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S45255.04**

Sample Tag: PT-TW-03R

Collected Date/Time: 02/09/2023 10:15

Matrix: Groundwater

COC Reference:

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 02/15/23 07:45 | FEI230215-W1   | FEI230215-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 02/14/23 09:51 | SFT230214-W1-A | SFT230214-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8           | 02/14/23 13:39 | MT4-23-0214B   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8           | 02/14/23 11:29 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

**Lab Sample ID: S45255.05**

Sample Tag: PT-TW-04R

Collected Date/Time: 02/09/2023 11:50

Matrix: Groundwater

COC Reference:

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 02/15/23 07:50 | FEI230215-W1   | FEI230215-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 02/14/23 10:01 | SFT230214-W1-A | SFT230214-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8           | 02/14/23 13:40 | MT4-23-0214B   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8           | 02/14/23 11:33 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |

# QC Report - Analysis Summary

Lab Sample ID: S45255.06

Sample Tag: MW-17-14

Collected Date/Time: 02/10/2023 11:20

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 02/14/23 11:36 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 02/14/23 11:36 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |



# QC Report - Analysis Summary

Lab Sample ID: S45255.07

Sample Tag: MW-17-15

Collected Date/Time: 02/10/2023 12:30

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 02/14/23 11:45 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 02/14/23 11:45 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S45255.08

Sample Tag: MW-17-16

Collected Date/Time: 02/10/2023 10:45

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 02/14/23 11:48 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 02/14/23 11:48 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S45255.09

Sample Tag: MW-17-17

Collected Date/Time: 02/10/2023 09:50

Matrix: Groundwater

COC Reference:

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 02/14/23 11:51 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 02/14/23 11:51 | MT4-23-0214A | MTD-021423-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

**Lab Sample ID: S45255.10**

Sample Tag: DUP-01

Collected Date/Time: 02/09/2023 00:01

Matrix: Groundwater

COC Reference:

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 02/15/23 07:55 | FEI230215-W1   | FEI230215-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 02/14/23 10:11 | SFT230214-W1-A | SFT230214-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Arsenic                  | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Barium                   | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Boron                    | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Calcium                  | E200.8           | 02/14/23 13:48 | MT4-23-0214B   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Iron                     | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Lithium                  | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |
| Selenium                 | E200.8           | 02/14/23 11:53 | MT4-23-0214A   | MTD-021423-1   | No   | BLK/LCS/MS/MSD    |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI230215-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method         | Run Date/Time  | Batch ID     |
|-----------|-------------------------|----------------|----------------|--------------|
| S45255.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 02/15/23 07:20 | FEI230215-W1 |
| S45255.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 02/15/23 07:25 | FEI230215-W1 |
| S45255.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 02/15/23 07:40 | FEI230215-W1 |
| S45255.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 02/15/23 07:45 | FEI230215-W1 |
| S45255.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 02/15/23 07:50 | FEI230215-W1 |
| S45255.10 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 02/15/23 07:55 | FEI230215-W1 |

### Inorganics, Prep Batch ID: SFT230214-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S45255.01 | Sulfate  | E300.0 | 02/14/23 09:21 | SFT230214-W1-A |
| S45255.02 | Sulfate  | E300.0 | 02/14/23 10:21 | SFT230214-W1-A |
| S45255.03 | Sulfate  | E300.0 | 02/14/23 09:41 | SFT230214-W1-A |
| S45255.04 | Sulfate  | E300.0 | 02/14/23 09:51 | SFT230214-W1-A |
| S45255.05 | Sulfate  | E300.0 | 02/14/23 10:01 | SFT230214-W1-A |
| S45255.10 | Sulfate  | E300.0 | 02/14/23 10:11 | SFT230214-W1-A |

### Metals, Prep Batch ID: MTD-021423-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S45255.01 | Arsenic    | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.01 | Barium     | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.01 | Boron      | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.01 | Calcium    | E200.8 | 02/14/23 13:34 | MT4-23-0214B |
| S45255.01 | Iron       | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.01 | Lithium    | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.01 | Molybdenum | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.01 | Selenium   | E200.8 | 02/14/23 11:19 | MT4-23-0214A |
| S45255.02 | Arsenic    | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.02 | Barium     | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.02 | Boron      | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.02 | Calcium    | E200.8 | 02/14/23 13:36 | MT4-23-0214B |
| S45255.02 | Iron       | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.02 | Lithium    | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.02 | Molybdenum | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.02 | Selenium   | E200.8 | 02/14/23 11:22 | MT4-23-0214A |
| S45255.03 | Arsenic    | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.03 | Barium     | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.03 | Boron      | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.03 | Calcium    | E200.8 | 02/14/23 13:37 | MT4-23-0214B |
| S45255.03 | Iron       | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.03 | Lithium    | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.03 | Molybdenum | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.03 | Selenium   | E200.8 | 02/14/23 11:25 | MT4-23-0214A |
| S45255.04 | Arsenic    | E200.8 | 02/14/23 11:29 | MT4-23-0214A |
| S45255.04 | Barium     | E200.8 | 02/14/23 11:29 | MT4-23-0214A |
| S45255.04 | Boron      | E200.8 | 02/14/23 11:29 | MT4-23-0214A |
| S45255.04 | Calcium    | E200.8 | 02/14/23 13:39 | MT4-23-0214B |
| S45255.04 | Iron       | E200.8 | 02/14/23 11:29 | MT4-23-0214A |
| S45255.04 | Lithium    | E200.8 | 02/14/23 11:29 | MT4-23-0214A |

## QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-021423-1 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S45255.04 | Molybdenum | E200.8 | 02/14/23 11:29 | MT4-23-0214A |
| S45255.04 | Selenium   | E200.8 | 02/14/23 11:29 | MT4-23-0214A |
| S45255.05 | Arsenic    | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.05 | Barium     | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.05 | Boron      | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.05 | Calcium    | E200.8 | 02/14/23 13:40 | MT4-23-0214B |
| S45255.05 | Iron       | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.05 | Lithium    | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.05 | Molybdenum | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.05 | Selenium   | E200.8 | 02/14/23 11:33 | MT4-23-0214A |
| S45255.06 | Arsenic    | E200.8 | 02/14/23 11:36 | MT4-23-0214A |
| S45255.06 | Lithium    | E200.8 | 02/14/23 11:36 | MT4-23-0214A |
| S45255.07 | Arsenic    | E200.8 | 02/14/23 11:45 | MT4-23-0214A |
| S45255.07 | Lithium    | E200.8 | 02/14/23 11:45 | MT4-23-0214A |
| S45255.08 | Arsenic    | E200.8 | 02/14/23 11:48 | MT4-23-0214A |
| S45255.08 | Lithium    | E200.8 | 02/14/23 11:48 | MT4-23-0214A |
| S45255.09 | Arsenic    | E200.8 | 02/14/23 11:51 | MT4-23-0214A |
| S45255.09 | Lithium    | E200.8 | 02/14/23 11:51 | MT4-23-0214A |
| S45255.10 | Arsenic    | E200.8 | 02/14/23 11:53 | MT4-23-0214A |
| S45255.10 | Barium     | E200.8 | 02/14/23 11:53 | MT4-23-0214A |
| S45255.10 | Boron      | E200.8 | 02/14/23 11:53 | MT4-23-0214A |
| S45255.10 | Calcium    | E200.8 | 02/14/23 13:48 | MT4-23-0214B |
| S45255.10 | Iron       | E200.8 | 02/14/23 11:53 | MT4-23-0214A |
| S45255.10 | Lithium    | E200.8 | 02/14/23 11:53 | MT4-23-0214A |
| S45255.10 | Molybdenum | E200.8 | 02/14/23 11:53 | MT4-23-0214A |
| S45255.10 | Selenium   | E200.8 | 02/14/23 11:53 | MT4-23-0214A |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI230215-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI230215-W1.LRB1

Run in Batch: FEI230215-W1, Run Date: 02/15/2023 07:00, Prep Date: 02/15/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI230215-W1.LCS1

Run in Batch: FEI230215-W1, Run Date: 02/15/2023 07:15, Prep Date: 02/15/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 102   | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI230215-W1.MS1, Parent Sample ID: S45255.02

Run in Batch: FEI230215-W1, Run Date: 02/15/2023 07:35, Prep Date: 02/15/2023, Matrix: Liquid, Dilution: 12.5

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 95    | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI230215-W1.DP1, Parent Sample ID: S45255.02

Run in Batch: FEI230215-W1, Run Date: 02/15/2023 07:30, Prep Date: 02/15/2023, Matrix: Liquid, Dilution: 12.5

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | <1  | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT230214-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT230214-W1-A.LRB1

Run in Batch: SFT230214-W1-A, Run Date: 02/14/2023 08:49, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT230214-W1-A.LCS1

Run in Batch: SFT230214-W1-A, Run Date: 02/14/2023 09:11, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 97    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT230214-W1-A.MS1, Parent Sample ID: S45255.01

Run in Batch: SFT230214-W1-A, Run Date: 02/14/2023 10:41, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 100   | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT230214-W1-A.MSD1, Parent Sample ID: SFT230214-W1-A.MS1

Run in Batch: SFT230214-W1-A, Run Date: 02/14/2023 10:52, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 100   | 80  | 120 | 0   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT230214-W1-A.DP1, Parent Sample ID: S45266.01

Run in Batch: SFT230214-W1-A, Run Date: 02/14/2023 10:31, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | 1   | 15     |



## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-021423-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Blank (BLK)

Lab Sample ID: MT4-23-0214A.021.LRB

Run in Batch: MT4-23-0214A, Run Date: 02/14/2023 11:16, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | Conc | RDL    | Units |
|------------|-------|------|--------|-------|
| Arsenic    |       | ND   | 0.0004 | mg/L  |
| Barium     |       | ND   | 0.001  | mg/L  |
| Boron      |       | ND   | 0.008  | mg/L  |
| Iron       |       | ND   | 0.004  | mg/L  |
| Lithium    |       | ND   | 0.001  | mg/L  |
| Molybdenum |       | ND   | 0.001  | mg/L  |
| Selenium   |       | ND   | 0.001  | mg/L  |

#### Blank (BLK)

Lab Sample ID: MT4-23-0214B.014.LRB

Run in Batch: MT4-23-0214B, Run Date: 02/14/2023 13:32, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Calcium |       | ND   | 0.05 | mg/L  |

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-23-0214A.019.LCS

Run in Batch: MT4-23-0214A, Run Date: 02/14/2023 11:08, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Arsenic    |       | 95    | 85  | 115 |
| Barium     |       | 98    | 85  | 115 |
| Boron      |       | 100   | 85  | 115 |
| Iron       |       | 100   | 85  | 115 |
| Lithium    |       | 99    | 85  | 115 |
| Molybdenum |       | 99    | 85  | 115 |
| Selenium   |       | 97    | 85  | 115 |

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-23-0214B.013.LCS

Run in Batch: MT4-23-0214B, Run Date: 02/14/2023 13:31, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 97    | 85  | 115 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-23-0214A.042.MS, Parent Sample ID: S45255.09

Run in Batch: MT4-23-0214A, Run Date: 02/14/2023 11:58, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Arsenic    |       | 108   | 75  | 125 |
| Barium     |       | 96    | 75  | 125 |
| Boron      |       | 119   | 75  | 125 |
| Iron       |       | 88    | 75  | 125 |
| Lithium    |       | 104   | 75  | 125 |
| Molybdenum |       | 100   | 75  | 125 |
| Selenium   |       | 108   | 75  | 125 |

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-021423-1 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0214A.063.MS, Parent Sample ID: S45265.01

Run in Batch: MT4-23-0214A, Run Date: 02/14/2023 12:48, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Arsenic    |       | 114   | 75  | 125 |
| Barium     |       | 109   | 75  | 125 |
| Iron       |       | 103   | 75  | 125 |
| Lithium    |       | 110   | 75  | 125 |
| Molybdenum |       | 100   | 75  | 125 |
| Selenium   |       | 107   | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0214B.035.MS, Parent Sample ID: S45255.09

Run in Batch: MT4-23-0214B, Run Date: 02/14/2023 13:49, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 90    | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0214A.043.MSD, Parent Sample ID: MT4-23-0214A.042.MS

Run in Batch: MT4-23-0214A, Run Date: 02/14/2023 12:00, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Arsenic    |       | 109   | 75  | 125 | 1   | 20     |
| Barium     |       | 100   | 75  | 125 | 3   | 20     |
| Boron      |       | 116   | 75  | 125 | 1   | 20     |
| Iron       |       | 96    | 75  | 125 | 1   | 20     |
| Lithium    |       | 105   | 75  | 125 | 1   | 20     |
| Molybdenum |       | 102   | 75  | 125 | 2   | 20     |
| Selenium   |       | 112   | 75  | 125 | 4   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0214A.064.MSD, Parent Sample ID: MT4-23-0214A.063.MS

Run in Batch: MT4-23-0214A, Run Date: 02/14/2023 12:50, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Arsenic    |       | 109   | 75  | 125 | 5   | 20     |
| Barium     |       | 106   | 75  | 125 | 3   | 20     |
| Iron       |       | 104   | 75  | 125 | 1   | 20     |
| Lithium    |       | 111   | 75  | 125 | 1   | 20     |
| Molybdenum |       | 102   | 75  | 125 | 2   | 20     |
| Selenium   |       | 106   | 75  | 125 | 1   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0214B.036.MSD, Parent Sample ID: MT4-23-0214B.035.MS

Run in Batch: MT4-23-0214B, Run Date: 02/14/2023 13:51, Prep Date: 02/14/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Calcium |       | 120   | 75  | 125 | 3   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S45255

Client:TRC (TRC)

Project: RRPP Pilot Testing

Submitted:02/13/2023 11:00 Login User: MMC

Attention: Vince Buening

Address: TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: 734-585-7812

FAX:

Email: vbuening@trcsolutions.com

| Selection                | Description  | Note   |
|--------------------------|--|--|
| <b>Sample Receiving</b>  |  |  |
| 01.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 5.0 |
| 02.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05.                      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| <b>Chain of Custody</b>  |  |  |
| 06.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                              |
| 07.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab                 |
| 08.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC                        |
| 09.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to:               |
| <b>Preservation</b>      |  |  |
| 10.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation           |
| 11.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs)    |
| 12.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?       |
| <b>Bottle Conditions</b> |  |  |
| 13.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                                     |
| 14.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used                |
| 15.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                                     |
| 16.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received                      |
| 17.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration                  |
| 18.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time                  |
| 19.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace          |

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: S45255 Submitted: 02/13/2023 11:00

Client: TRC (TRC)

Project: RRPP Pilot Testing

Initial Preservation Check: 02/13/2023 11:10 MMC

Preservation Recheck (E200.8): N/A

Attention: Vince Buening

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: 734-585-7812

FAX:

Email: vbuening@trcsolutions.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S45255.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.06 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.07 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.08 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.09 | 125ml Plastic HNO3    | <2        |        |          |       |
| S45255.10 | 125ml Plastic HNO3    | <2        |        |          |       |





# Analytical Laboratory Report

Report ID: S48403.01(01)+QC01  
Generated on 05/17/2023

## Report to

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Attention: Dave McKenzie  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: O:734-585-7824 C:734-904-3316 FAX:  
Email: DMcKenzie@trcsolutions.com

Additional Contacts: Vince Buening

## Report produced by

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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

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Lab Sample ID(s): S48403.01-S48403.10  
Project: DTE RIVER ROUGE PILOT TEST  
Collected Date(s): 05/08/2023 - 05/09/2023  
Submitted Date/Time: 05/10/2023 12:10  
Sampled by: B. Yelen  
P.O. #: 188112

## Table of Contents

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Full accreditation certificates are available upon request. Starred (\*) analytes are not 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.

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

| Authority           | Certification ID |
|---------------------|------------------|
| Michigan DEQ        | #9956            |
| DOD ELAP/ISO 17025  | #69699           |
| WBENC               | #2005110032      |
| Ohio VAP            | #CL0002          |
| Indiana DOH         | #C-MI-07         |
| New York NELAC      | #11814           |
| North Carolina DENR | #680             |
| North Carolina DOH  | #26702           |
| Alaska CSLAP        | #17-001          |
| 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                         |
| p         | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| 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                     |
| E300.0           | EPA Method 300.0 Revision 2.1 (1993)              |
| SM3500FeB/HACH81 | Standard Method 3500 Fe B 2011 / HACH Method 8146 |
| SW3015A          | SW 846 Method 3015A Revision 1 February 2007      |



# Analytical Laboratory Report

## Sample Summary (10 samples)

| Sample ID | Sample Tag | Matrix      | Collected Date/Time |
|-----------|------------|-------------|---------------------|
| S48403.01 | PT-TW-04R  | Groundwater | 05/08/23 09:15      |
| S48403.02 | PT-TW-02   | Groundwater | 05/08/23 09:55      |
| S48403.03 | PT-TW-03R  | Groundwater | 05/08/23 10:30      |
| S48403.04 | PT-TW-01   | Groundwater | 05/08/23 11:05      |
| S48403.05 | MW-16-01   | Groundwater | 05/08/23 11:50      |
| S48403.06 | Dup-01     | Groundwater | 05/08/23 00:01      |
| S48403.07 | MW-17-15   | Groundwater | 05/08/23 13:20      |
| S48403.08 | MW-17-14   | Groundwater | 05/09/23 09:35      |
| S48403.09 | MW-17-16   | Groundwater | 05/09/23 10:30      |
| S48403.10 | MW-17-17   | Groundwater | 05/09/23 11:05      |



# Analytical Laboratory Report

Lab Sample ID: S48403.01

Sample Tag: PT-TW-04R

Collected Date/Time: 05/08/2023 09:15

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 3.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 05/11/23 12:59 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 05/15/23 11:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 05/11/23 11:04, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 105    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 05/16/23 11:20, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 7.80   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 05/16/23 12:35, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 133    | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 05/15/23 14:05, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.047        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.328        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.79         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 8.20         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.049        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 05/11/23 14:59, 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: S48403.02

Sample Tag: PT-TW-02

Collected Date/Time: 05/08/2023 09:55

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 3.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 05/11/23 12:59 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 05/15/23 11:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 05/11/23 11:17, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 103    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 05/16/23 11:30, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 7.75   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 05/16/23 12:36, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 96.7   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 05/15/23 14:08, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | Not detected | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.240        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.71         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 8.56         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.052        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 05/11/23 15:03, 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: S48403.03

Sample Tag: PT-TW-03R

Collected Date/Time: 05/08/2023 10:30

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 3.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 05/11/23 12:59 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 05/15/23 11:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 05/11/23 11:30, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 219    | 50 | 3.0 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 05/16/23 11:40, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 8.90   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 05/16/23 12:38, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 92.9   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 05/15/23 14:12, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.021        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.097        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.64         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 9.37         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.042        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 05/11/23 15:06, 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: S48403.04

Sample Tag: PT-TW-01

Collected Date/Time: 05/08/2023 11:05

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 3.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 05/11/23 12:59 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 05/15/23 11:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 05/11/23 11:08, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 406    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 05/16/23 11:45, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.55   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 05/16/23 12:39, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 151    | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 05/15/23 14:15, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.023        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.193        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 1.30         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 1.61         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.041        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | 0.007        | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 05/11/23 15:09, 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: S48403.05**

Sample Tag: MW-16-01

Collected Date/Time: 05/08/2023 11:50

Matrix: Groundwater

COC Reference: 152360

**Sample Containers**

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 3.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 3.0               | IR            |

**Extraction / Prep.**

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 05/11/23 12:59 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 05/15/23 11:00 | CCM     |       |

**Inorganics**

**Method: E300.0, Run Date: 05/11/23 11:18, Analyst: JDP**

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 184    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

**Method: SM3500FeB/HACH81, Run Date: 05/16/23 11:50, Analyst: JKB**

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 1.05   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

**Metals**

**Method: E200.8, Run Date: 05/16/23 12:41, Analyst: CCM**

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 66.0   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

**Method: E200.8, Run Date: 05/15/23 14:18, Analyst: CCM**

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.004        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.067        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.81         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 3.26         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.053        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

**Method: E245.1, Run Date: 05/11/23 15:13, 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: S48403.06

Sample Tag: Dup-01

Collected Date/Time: 05/08/2023 00:01

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 2 | 40ml Glass    | HCL             | Yes           | 3.0               | IR            |
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |
| 1 | 250ml Plastic | None            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter         | Result    | Method  | Run Date       | Analyst | Flags |
|-------------------|-----------|---------|----------------|---------|-------|
| Mercury Digestion | Completed | E245.1  | 05/11/23 12:59 | CTV     |       |
| Metal Digestion   | Completed | SW3015A | 05/15/23 11:00 | CCM     |       |

### Inorganics

Method: E300.0, Run Date: 05/11/23 11:28, Analyst: JDP

| Parameter | Result | RL | MDL | Units | Dilution | CAS#       | Flags |
|-----------|--------|----|-----|-------|----------|------------|-------|
| Sulfate   | 187    | 50 | 5.2 | mg/L  | 50       | 14808-79-8 |       |

Method: SM3500FeB/HACH81, Run Date: 05/16/23 11:55, Analyst: JKB

| Parameter                | Result | RL  | MDL | Units | Dilution | CAS#       | Flags |
|--------------------------|--------|-----|-----|-------|----------|------------|-------|
| Ferrous Iron, Dissolved* | 0.90   | 0.1 |     | mg/L  | 5        | 15438-31-0 |       |

### Metals

Method: E200.8, Run Date: 05/16/23 12:42, Analyst: CCM

| Parameter | Result | RL   | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|------|-----|-------|----------|-----------|-------|
| Calcium*  | 65.5   | 0.50 |     | mg/L  | 2        | 7440-70-2 |       |

Method: E200.8, Run Date: 05/15/23 14:22, Analyst: CCM

| Parameter  | Result       | RL     | MDL | Units | Dilution | CAS#      | Flags |
|------------|--------------|--------|-----|-------|----------|-----------|-------|
| Antimony*  | Not detected | 0.001  |     | mg/L  | 2        | 7440-36-0 |       |
| Arsenic    | 0.004        | 0.002  |     | mg/L  | 2        | 7440-38-2 |       |
| Barium     | 0.066        | 0.005  |     | mg/L  | 2        | 7440-39-3 |       |
| Beryllium  | Not detected | 0.001  |     | mg/L  | 2        | 7440-41-7 |       |
| Boron      | 0.78         | 0.04   |     | mg/L  | 2        | 7440-42-8 |       |
| Cadmium    | Not detected | 0.0005 |     | mg/L  | 2        | 7440-43-9 |       |
| Chromium   | Not detected | 0.005  |     | mg/L  | 2        | 7440-47-3 |       |
| Cobalt     | Not detected | 0.005  |     | mg/L  | 2        | 7440-48-4 |       |
| Iron       | 3.31         | 0.02   |     | mg/L  | 2        | 7439-89-6 |       |
| Lead       | Not detected | 0.003  |     | mg/L  | 2        | 7439-92-1 |       |
| Lithium*   | 0.052        | 0.005  |     | mg/L  | 2        | 7439-93-2 |       |
| Molybdenum | Not detected | 0.005  |     | mg/L  | 2        | 7439-98-7 |       |
| Selenium   | Not detected | 0.005  |     | mg/L  | 2        | 7782-49-2 |       |
| Thallium   | Not detected | 0.002  |     | mg/L  | 2        | 7440-28-0 |       |

Method: E245.1, Run Date: 05/11/23 15:16, 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: S48403.07

Sample Tag: MW-17-15

Collected Date/Time: 05/08/2023 13:20

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 05/17/23 10:30 | CCM     |       |

### Metals

Method: E200.8, Run Date: 05/17/23 12:53, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.012  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.036  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S48403.08

Sample Tag: MW-17-14

Collected Date/Time: 05/09/2023 09:35

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 05/17/23 10:30 | CCM     |       |

### Metals

Method: E200.8, Run Date: 05/17/23 12:54, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.002  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.018  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S48403.09

Sample Tag: MW-17-16

Collected Date/Time: 05/09/2023 10:30

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 05/17/23 10:30 | CCM     |       |

### Metals

Method: E200.8, Run Date: 05/17/23 12:56, Analyst: CCM

| Parameter | Result | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | 0.085  | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.039  | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Analytical Laboratory Report

Lab Sample ID: S48403.10

Sample Tag: MW-17-17

Collected Date/Time: 05/09/2023 11:05

Matrix: Groundwater

COC Reference: 152360

### Sample Containers

| # | Type          | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---------------|-----------------|---------------|-------------------|---------------|
| 1 | 125ml Plastic | HNO3            | Yes           | 3.0               | IR            |

### Extraction / Prep.

| Parameter       | Result    | Method  | Run Date       | Analyst | Flags |
|-----------------|-----------|---------|----------------|---------|-------|
| Metal Digestion | Completed | SW3015A | 05/17/23 10:30 | CCM     |       |

### Metals

Method: E200.8, Run Date: 05/17/23 12:57, Analyst: CCM

| Parameter | Result       | RL    | MDL | Units | Dilution | CAS#      | Flags |
|-----------|--------------|-------|-----|-------|----------|-----------|-------|
| Arsenic   | Not detected | 0.002 |     | mg/L  | 5        | 7440-38-2 |       |
| Lithium*  | 0.012        | 0.005 |     | mg/L  | 5        | 7439-93-2 |       |



# Quality Control Report

Report ID: S48403.01(01)+QC01  
Generated on 05/17/2023

Report to

Attention: Dave McKenzie  
TRC  
1540 Eisenhower Place  
Ann Arbor, MI 48108

Report Produced by

Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

Phone: O:734-585-7824 C:734-904-3316 FAX:

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

Report Summary

Lab Sample ID(s): S48403.01-S48403.10  
Project: DTE RIVER ROUGE PILOT TEST  
Submitted Date/Time: 05/10/2023 12:10  
Sampled by: B. Yelen  
P.O. #: 188112

QC Report Sections

Cover Page (Page 16)  
Analysis Summary (Pages 17-26)  
Prep Batch Summary (Pages 27-29)  
Batch QC Results (Pages 30-38)

Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

# QC Report - Analysis Summary

**Lab Sample ID: S48403.01**

Sample Tag: PT-TW-04R

Collected Date/Time: 05/08/2023 09:15

Matrix: Groundwater

COC Reference: 152360

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 05/16/23 11:20 | FEI230516-W1   | FEI230516-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 05/11/23 11:04 | SFT230511-W1-B | SFT230511-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Antimony                 | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Arsenic                  | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Barium                   | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Beryllium                | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Boron                    | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cadmium                  | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Calcium                  | E200.8           | 05/16/23 12:35 | MT4-23-0516B   | MTD-051623-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cobalt                   | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Iron                     | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lead                     | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lithium                  | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Mercury                  | E245.1           | 05/11/23 14:59 | HG-23-0511A    | HGD-051123-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Selenium                 | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Thallium                 | E200.8           | 05/15/23 14:05 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |

## QC Report - Analysis Summary

**Lab Sample ID: S48403.02**

Sample Tag: PT-TW-02

Collected Date/Time: 05/08/2023 09:55

Matrix: Groundwater

COC Reference: 152360

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 05/16/23 11:30 | FEI230516-W1   | FEI230516-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 05/11/23 11:17 | SFT230511-W1-B | SFT230511-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Antimony                 | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Arsenic                  | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Barium                   | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Beryllium                | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Boron                    | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cadmium                  | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Calcium                  | E200.8           | 05/16/23 12:36 | MT4-23-0516B   | MTD-051623-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cobalt                   | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Iron                     | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lead                     | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lithium                  | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Mercury                  | E245.1           | 05/11/23 15:03 | HG-23-0511A    | HGD-051123-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Selenium                 | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Thallium                 | E200.8           | 05/15/23 14:08 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |

# QC Report - Analysis Summary

**Lab Sample ID: S48403.03**

Sample Tag: PT-TW-03R

Collected Date/Time: 05/08/2023 10:30

Matrix: Groundwater

COC Reference: 152360

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 05/16/23 11:40 | FEI230516-W1   | FEI230516-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 05/11/23 11:30 | SFT230511-W1-B | SFT230511-W1-B | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Antimony                 | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Arsenic                  | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Barium                   | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Beryllium                | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Boron                    | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cadmium                  | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Calcium                  | E200.8           | 05/16/23 12:38 | MT4-23-0516B   | MTD-051623-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cobalt                   | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Iron                     | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lead                     | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lithium                  | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Mercury                  | E245.1           | 05/11/23 15:06 | HG-23-0511A    | HGD-051123-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Selenium                 | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Thallium                 | E200.8           | 05/15/23 14:12 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |



## QC Report - Analysis Summary

**Lab Sample ID: S48403.04**

Sample Tag: PT-TW-01

Collected Date/Time: 05/08/2023 11:05

Matrix: Groundwater

COC Reference: 152360

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 05/16/23 11:45 | FEI230516-W1   | FEI230516-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 05/11/23 11:08 | SFT230511-W1-A | SFT230511-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Antimony                 | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Arsenic                  | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Barium                   | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Beryllium                | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Boron                    | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cadmium                  | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Calcium                  | E200.8           | 05/16/23 12:39 | MT4-23-0516B   | MTD-051623-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cobalt                   | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Iron                     | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lead                     | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lithium                  | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Mercury                  | E245.1           | 05/11/23 15:09 | HG-23-0511A    | HGD-051123-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Selenium                 | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Thallium                 | E200.8           | 05/15/23 14:15 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |

# QC Report - Analysis Summary

**Lab Sample ID: S48403.05**

Sample Tag: MW-16-01

Collected Date/Time: 05/08/2023 11:50

Matrix: Groundwater

COC Reference: 152360

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 05/16/23 11:50 | FEI230516-W1   | FEI230516-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 05/11/23 11:18 | SFT230511-W1-A | SFT230511-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Antimony                 | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Arsenic                  | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Barium                   | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Beryllium                | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Boron                    | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cadmium                  | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Calcium                  | E200.8           | 05/16/23 12:41 | MT4-23-0516B   | MTD-051623-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cobalt                   | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Iron                     | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lead                     | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lithium                  | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Mercury                  | E245.1           | 05/11/23 15:13 | HG-23-0511A    | HGD-051123-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Selenium                 | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Thallium                 | E200.8           | 05/15/23 14:18 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |

# QC Report - Analysis Summary

**Lab Sample ID: S48403.06**

Sample Tag: Dup-01

Collected Date/Time: 05/08/2023 00:01

Matrix: Groundwater

COC Reference: 152360

| Analysis                 | Method           | Run Date/Time  | Batch ID       | Prep ID        | Surr | QC Types          |
|--------------------------|------------------|----------------|----------------|----------------|------|-------------------|
| <b><i>Inorganics</i></b> |                  |                |                |                |      |                   |
| Ferrous Iron, Dissolved  | SM3500FeB/HACHDR | 05/16/23 11:55 | FEI230516-W1   | FEI230516-W1   | No   | BLK/LCS/MS/DUP    |
| Sulfate                  | E300.0           | 05/11/23 11:28 | SFT230511-W1-A | SFT230511-W1-A | No   | BLK/LCS/MS/MSD/DU |
| <b><i>Metals</i></b>     |                  |                |                |                |      |                   |
| Antimony                 | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Arsenic                  | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Barium                   | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Beryllium                | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Boron                    | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cadmium                  | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Calcium                  | E200.8           | 05/16/23 12:42 | MT4-23-0516B   | MTD-051623-2   | No   | BLK/LCS/MS/MSD    |
| Chromium                 | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Cobalt                   | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Iron                     | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lead                     | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Lithium                  | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Mercury                  | E245.1           | 05/11/23 15:16 | HG-23-0511A    | HGD-051123-2   | No   | BLK/LCS/MS/MSD    |
| Molybdenum               | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Selenium                 | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |
| Thallium                 | E200.8           | 05/15/23 14:22 | MT4-23-0515A   | MTD-051523-3   | No   | BLK/LCS/MS/MSD/DU |

# QC Report - Analysis Summary

Lab Sample ID: S48403.07

Sample Tag: MW-17-15

Collected Date/Time: 05/08/2023 13:20

Matrix: Groundwater

COC Reference: 152360

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 05/17/23 12:53 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 05/17/23 12:53 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S48403.08

Sample Tag: MW-17-14

Collected Date/Time: 05/09/2023 09:35

Matrix: Groundwater

COC Reference: 152360

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 05/17/23 12:54 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 05/17/23 12:54 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S48403.09

Sample Tag: MW-17-16

Collected Date/Time: 05/09/2023 10:30

Matrix: Groundwater

COC Reference: 152360

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 05/17/23 12:56 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 05/17/23 12:56 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |

# QC Report - Analysis Summary

Lab Sample ID: S48403.10

Sample Tag: MW-17-17

Collected Date/Time: 05/09/2023 11:05

Matrix: Groundwater

COC Reference: 152360

| Analysis      | Method | Run Date/Time  | Batch ID     | Prep ID      | Surr | QC Types       |
|---------------|--------|----------------|--------------|--------------|------|----------------|
| <b>Metals</b> |        |                |              |              |      |                |
| Arsenic       | E200.8 | 05/17/23 12:57 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |
| Lithium       | E200.8 | 05/17/23 12:57 | MT4-23-0517A | MTD-051723-1 | No   | BLK/LCS/MS/MSD |

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: FEI230516-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

| Sample ID | Analysis                | Method         | Run Date/Time  | Batch ID     |
|-----------|-------------------------|----------------|----------------|--------------|
| S48403.01 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 05/16/23 11:20 | FEI230516-W1 |
| S48403.02 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 05/16/23 11:30 | FEI230516-W1 |
| S48403.03 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 05/16/23 11:40 | FEI230516-W1 |
| S48403.04 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 05/16/23 11:45 | FEI230516-W1 |
| S48403.05 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 05/16/23 11:50 | FEI230516-W1 |
| S48403.06 | Ferrous Iron, Dissolved | SM3500FeB/HACH | 05/16/23 11:55 | FEI230516-W1 |

### Inorganics, Prep Batch ID: SFT230511-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S48403.04 | Sulfate  | E300.0 | 05/11/23 11:08 | SFT230511-W1-A |
| S48403.05 | Sulfate  | E300.0 | 05/11/23 11:18 | SFT230511-W1-A |
| S48403.06 | Sulfate  | E300.0 | 05/11/23 11:28 | SFT230511-W1-A |

### Inorganics, Prep Batch ID: SFT230511-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID       |
|-----------|----------|--------|----------------|----------------|
| S48403.01 | Sulfate  | E300.0 | 05/11/23 11:04 | SFT230511-W1-B |
| S48403.02 | Sulfate  | E300.0 | 05/11/23 11:17 | SFT230511-W1-B |
| S48403.03 | Sulfate  | E300.0 | 05/11/23 11:30 | SFT230511-W1-B |

### Metals, Prep Batch ID: HGD-051123-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID    |
|-----------|----------|--------|----------------|-------------|
| S48403.01 | Mercury  | E245.1 | 05/11/23 14:59 | HG-23-0511A |
| S48403.02 | Mercury  | E245.1 | 05/11/23 15:03 | HG-23-0511A |
| S48403.03 | Mercury  | E245.1 | 05/11/23 15:06 | HG-23-0511A |
| S48403.04 | Mercury  | E245.1 | 05/11/23 15:09 | HG-23-0511A |
| S48403.05 | Mercury  | E245.1 | 05/11/23 15:13 | HG-23-0511A |
| S48403.06 | Mercury  | E245.1 | 05/11/23 15:16 | HG-23-0511A |

### Metals, Prep Batch ID: MTD-051523-3

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S48403.01 | Antimony   | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Arsenic    | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Barium     | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Beryllium  | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Boron      | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Cadmium    | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Chromium   | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Cobalt     | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Iron       | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Lead       | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Lithium    | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Molybdenum | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Selenium   | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.01 | Thallium   | E200.8 | 05/15/23 14:05 | MT4-23-0515A |
| S48403.02 | Antimony   | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Arsenic    | E200.8 | 05/15/23 14:08 | MT4-23-0515A |



# QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-051523-3 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S48403.02 | Barium     | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Beryllium  | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Boron      | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Cadmium    | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Chromium   | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Cobalt     | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Iron       | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Lead       | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Lithium    | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Molybdenum | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Selenium   | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.02 | Thallium   | E200.8 | 05/15/23 14:08 | MT4-23-0515A |
| S48403.03 | Antimony   | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Arsenic    | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Barium     | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Beryllium  | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Boron      | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Cadmium    | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Chromium   | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Cobalt     | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Iron       | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Lead       | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Lithium    | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Molybdenum | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Selenium   | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.03 | Thallium   | E200.8 | 05/15/23 14:12 | MT4-23-0515A |
| S48403.04 | Antimony   | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Arsenic    | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Barium     | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Beryllium  | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Boron      | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Cadmium    | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Chromium   | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Cobalt     | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Iron       | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Lead       | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Lithium    | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Molybdenum | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Selenium   | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.04 | Thallium   | E200.8 | 05/15/23 14:15 | MT4-23-0515A |
| S48403.05 | Antimony   | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Arsenic    | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Barium     | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Beryllium  | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Boron      | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Cadmium    | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Chromium   | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Cobalt     | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Iron       | E200.8 | 05/15/23 14:18 | MT4-23-0515A |

## QC Report - Prep Batch Summary

### Metals, Prep Batch ID: MTD-051523-3 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

| Sample ID | Analysis   | Method | Run Date/Time  | Batch ID     |
|-----------|------------|--------|----------------|--------------|
| S48403.05 | Lead       | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Lithium    | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Molybdenum | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Selenium   | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.05 | Thallium   | E200.8 | 05/15/23 14:18 | MT4-23-0515A |
| S48403.06 | Antimony   | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Arsenic    | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Barium     | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Beryllium  | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Boron      | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Cadmium    | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Chromium   | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Cobalt     | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Iron       | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Lead       | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Lithium    | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Molybdenum | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Selenium   | E200.8 | 05/15/23 14:22 | MT4-23-0515A |
| S48403.06 | Thallium   | E200.8 | 05/15/23 14:22 | MT4-23-0515A |

### Metals, Prep Batch ID: MTD-051623-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S48403.01 | Calcium  | E200.8 | 05/16/23 12:35 | MT4-23-0516B |
| S48403.02 | Calcium  | E200.8 | 05/16/23 12:36 | MT4-23-0516B |
| S48403.03 | Calcium  | E200.8 | 05/16/23 12:38 | MT4-23-0516B |
| S48403.04 | Calcium  | E200.8 | 05/16/23 12:39 | MT4-23-0516B |
| S48403.05 | Calcium  | E200.8 | 05/16/23 12:41 | MT4-23-0516B |
| S48403.06 | Calcium  | E200.8 | 05/16/23 12:42 | MT4-23-0516B |

### Metals, Prep Batch ID: MTD-051723-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

| Sample ID | Analysis | Method | Run Date/Time  | Batch ID     |
|-----------|----------|--------|----------------|--------------|
| S48403.07 | Arsenic  | E200.8 | 05/17/23 12:53 | MT4-23-0517A |
| S48403.07 | Lithium  | E200.8 | 05/17/23 12:53 | MT4-23-0517A |
| S48403.08 | Arsenic  | E200.8 | 05/17/23 12:54 | MT4-23-0517A |
| S48403.08 | Lithium  | E200.8 | 05/17/23 12:54 | MT4-23-0517A |
| S48403.09 | Arsenic  | E200.8 | 05/17/23 12:56 | MT4-23-0517A |
| S48403.09 | Lithium  | E200.8 | 05/17/23 12:56 | MT4-23-0517A |
| S48403.10 | Arsenic  | E200.8 | 05/17/23 12:57 | MT4-23-0517A |
| S48403.10 | Lithium  | E200.8 | 05/17/23 12:57 | MT4-23-0517A |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: FEI230516-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

### Blank (BLK)

Lab Sample ID: FEI230516-W1.LRB1

Run in Batch: FEI230516-W1, Run Date: 05/16/2023 11:00, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | Conc | RDL  | Units |
|--------------|-------|------|------|-------|
| Ferrous Iron |       | ND   | 0.02 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: FEI230516-W1.LCS1

Run in Batch: FEI230516-W1, Run Date: 05/16/2023 11:15, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 98    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: FEI230516-W1.MS1, Parent Sample ID: S48403.02

Run in Batch: FEI230516-W1, Run Date: 05/16/2023 11:35, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 1

| Analyte      | Flags | % Rec | LCL | UCL |
|--------------|-------|-------|-----|-----|
| Ferrous Iron |       | 105   | 80  | 120 |

### Duplicate (DUP)

Lab Sample ID: FEI230516-W1.DP1, Parent Sample ID: S48403.01

Run in Batch: FEI230516-W1, Run Date: 05/16/2023 11:25, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 5

| Analyte      | Flags | RPD | RPD CL |
|--------------|-------|-----|--------|
| Ferrous Iron |       | 1   | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT230511-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT230511-W1-A.LRB1

Run in Batch: SFT230511-W1-A, Run Date: 05/11/2023 07:14, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT230511-W1-A.LCS1

Run in Batch: SFT230511-W1-A, Run Date: 05/11/2023 07:37, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 98    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT230511-W1-A.MS1, Parent Sample ID: S48416.01

Run in Batch: SFT230511-W1-A, Run Date: 05/11/2023 09:37, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 99    | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT230511-W1-A.MSD1, Parent Sample ID: SFT230511-W1-A.MS1

Run in Batch: SFT230511-W1-A, Run Date: 05/11/2023 09:47, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 10

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 99    | 80  | 120 | 0   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT230511-W1-A.DP1, Parent Sample ID: S48416.01

Run in Batch: SFT230511-W1-A, Run Date: 05/11/2023 09:27, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 10

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | 2   | 15     |

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: SFT230511-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

### Blank (BLK)

Lab Sample ID: SFT230511-W1-B.LRB1

Run in Batch: SFT230511-W1-B, Run Date: 05/11/2023 07:13, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL | Units |
|---------|-------|------|-----|-------|
| Sulfate |       | ND   | 1   | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: SFT230511-W1-B.LCS1

Run in Batch: SFT230511-W1-B, Run Date: 05/11/2023 07:39, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 96    | 90  | 110 |

### Matrix Spike (MS)

Lab Sample ID: SFT230511-W1-B.MS1, Parent Sample ID: S48411.02

Run in Batch: SFT230511-W1-B, Run Date: 05/11/2023 10:13, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Sulfate |       | 97    | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: SFT230511-W1-B.MSD1, Parent Sample ID: SFT230511-W1-B.MS1

Run in Batch: SFT230511-W1-B, Run Date: 05/11/2023 10:26, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Sulfate |       | 99    | 80  | 120 | 1   | 15     |

### Duplicate (DUP)

Lab Sample ID: SFT230511-W1-B.DP1, Parent Sample ID: S48411.02

Run in Batch: SFT230511-W1-B, Run Date: 05/11/2023 10:00, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | RPD | RPD CL |
|---------|-------|-----|--------|
| Sulfate |       | <1  | 15     |

# QC Report - Batch QC Results

## Metals, Prep Batch ID: HGD-051123-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

### Blank (BLK)

Lab Sample ID: HG-23-0511A.045.LRB

Run in Batch: HG-23-0511A, Run Date: 05/11/2023 14:50, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Mercury |       | ND   | 0.20 | ug/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: HG-23-0511A.044.LCS

Run in Batch: HG-23-0511A, Run Date: 05/11/2023 14:46, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 108   | 85  | 115 |

### Matrix Spike (MS)

Lab Sample ID: HG-23-0511A.056.MS, Parent Sample ID: S48427.02

Run in Batch: HG-23-0511A, Run Date: 05/11/2023 15:26, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 107   | 80  | 120 |

### Matrix Spike (MS)

Lab Sample ID: HG-23-0511A.070.MS, Parent Sample ID: S48438.02

Run in Batch: HG-23-0511A, Run Date: 05/11/2023 16:12, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Mercury |       | 107   | 80  | 120 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG-23-0511A.057.MSD, Parent Sample ID: HG-23-0511A.056.MS

Run in Batch: HG-23-0511A, Run Date: 05/11/2023 15:29, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 107   | 80  | 120 | 0   | 20     |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG-23-0511A.071.MSD, Parent Sample ID: HG-23-0511A.070.MS

Run in Batch: HG-23-0511A, Run Date: 05/11/2023 16:15, Prep Date: 05/11/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Mercury |       | 107   | 80  | 120 | 0   | 20     |

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-051523-3**

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

**Blank (BLK)**

Lab Sample ID: MT4-23-0515A.023.LRB

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 12:30, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | Conc | RDL    | Units |
|------------|-------|------|--------|-------|
| Antimony   |       | ND   | 0.001  | mg/L  |
| Arsenic    |       | ND   | 0.0004 | mg/L  |
| Barium     |       | ND   | 0.001  | mg/L  |
| Beryllium  |       | ND   | 0.0002 | mg/L  |
| Boron      |       | ND   | 0.008  | mg/L  |
| Cadmium    |       | ND   | 0.0001 | mg/L  |
| Chromium   |       | ND   | 0.001  | mg/L  |
| Cobalt     |       | ND   | 0.001  | mg/L  |
| Iron       |       | ND   | 0.004  | mg/L  |
| Lead       |       | ND   | 0.0006 | mg/L  |
| Lithium    |       | ND   | 0.001  | mg/L  |
| Molybdenum |       | ND   | 0.001  | mg/L  |
| Selenium   |       | ND   | 0.001  | mg/L  |
| Thallium   |       | ND   | 0.0004 | mg/L  |

**Blank (BLK)**

Lab Sample ID: MT4-23-0516C.016.LRB

Run in Batch: MT4-23-0516C, Run Date: 05/16/2023 14:56, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 1

| Analyte  | Flags | Conc | RDL   | Units |
|----------|-------|------|-------|-------|
| Antimony |       | ND   | 0.001 | mg/L  |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-23-0515A.021.LCS

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 12:18, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 1

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 104   | 85  | 115 |
| Arsenic    |       | 98    | 85  | 115 |
| Barium     |       | 98    | 85  | 115 |
| Beryllium  |       | 97    | 85  | 115 |
| Boron      |       | 96    | 85  | 115 |
| Cadmium    |       | 98    | 85  | 115 |
| Chromium   |       | 100   | 85  | 115 |
| Cobalt     |       | 97    | 85  | 115 |
| Iron       |       | 102   | 85  | 115 |
| Lead       |       | 98    | 85  | 115 |
| Lithium    |       | 94    | 85  | 115 |
| Molybdenum |       | 101   | 85  | 115 |
| Selenium   |       | 99    | 85  | 115 |
| Thallium   |       | 100   | 85  | 115 |

**Laboratory Control Sample (LCS)**

Lab Sample ID: MT4-23-0516C.015.LCS

Run in Batch: MT4-23-0516C, Run Date: 05/16/2023 14:53, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 1

| Analyte  | Flags | % Rec | LCL | UCL |
|----------|-------|-------|-----|-----|
| Antimony |       | 99    | 85  | 115 |

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-051523-3 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0515A.061.MS, Parent Sample ID: S48502.01

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 13:37, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 2

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 105   | 75  | 125 |
| Arsenic    |       | 98    | 75  | 125 |
| Barium     |       | 95    | 75  | 125 |
| Beryllium  |       | 100   | 75  | 125 |
| Boron      |       | 101   | 75  | 125 |
| Cadmium    |       | 95    | 75  | 125 |
| Chromium   |       | 100   | 75  | 125 |
| Cobalt     |       | 95    | 75  | 125 |
| Iron       |       | 109   | 75  | 125 |
| Lead       |       | 93    | 75  | 125 |
| Lithium    |       | 97    | 75  | 125 |
| Molybdenum |       | 103   | 75  | 125 |
| Selenium   |       | 98    | 75  | 125 |
| Thallium   |       | 97    | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0515A.083.MS, Parent Sample ID: S48243.01

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 14:28, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL |
|------------|-------|-------|-----|-----|
| Antimony   |       | 99    | 75  | 125 |
| Arsenic    |       | 99    | 75  | 125 |
| Barium     |       | 91    | 75  | 125 |
| Beryllium  |       | 91    | 75  | 125 |
| Boron      |       | 79    | 75  | 125 |
| Cadmium    |       | 91    | 75  | 125 |
| Chromium   |       | 101   | 75  | 125 |
| Cobalt     |       | 96    | 75  | 125 |
| Iron       |       | 100   | 75  | 125 |
| Lead       |       | 92    | 75  | 125 |
| Lithium    |       | 98    | 75  | 125 |
| Molybdenum |       | 104   | 75  | 125 |
| Selenium   |       | 101   | 75  | 125 |
| Thallium   |       | 95    | 75  | 125 |

**Matrix Spike (MS)**

Lab Sample ID: MT4-23-0516C.027.MS, Parent Sample ID: S47129.02

Run in Batch: MT4-23-0516C, Run Date: 05/16/2023 15:17, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 5

| Analyte  | Flags | % Rec | LCL | UCL |
|----------|-------|-------|-----|-----|
| Antimony |       | 117   | 75  | 125 |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0515A.062.MSD, Parent Sample ID: MT4-23-0515A.061.MS

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 13:39, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 2

| Analyte  | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|----------|-------|-------|-----|-----|-----|--------|
| Antimony |       | 103   | 75  | 125 | 2   | 20     |
| Arsenic  |       | 99    | 75  | 125 | 1   | 20     |



**QC Report - Batch QC Results**

**Metals, Prep Batch ID: MTD-051523-3 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

**Matrix Spike Duplicate (MSD) (continued)**

Lab Sample ID: MT4-23-0515A.062.MSD, Parent Sample ID: MT4-23-0515A.061.MS

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 13:39, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 2

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Barium     |       | 93    | 75  | 125 | 1   | 20     |
| Beryllium  |       | 93    | 75  | 125 | 7   | 20     |
| Boron      |       | 89    | 75  | 125 | 5   | 20     |
| Cadmium    |       | 97    | 75  | 125 | 2   | 20     |
| Chromium   |       | 101   | 75  | 125 | 1   | 20     |
| Cobalt     |       | 96    | 75  | 125 | 1   | 20     |
| Iron       |       | 105   | 75  | 125 | 2   | 20     |
| Lead       |       | 95    | 75  | 125 | 2   | 20     |
| Lithium    |       | 90    | 75  | 125 | 6   | 20     |
| Molybdenum |       | 108   | 75  | 125 | 5   | 20     |
| Selenium   |       | 100   | 75  | 125 | 2   | 20     |
| Thallium   |       | 97    | 75  | 125 | 0   | 20     |

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: MT4-23-0515A.084.MSD, Parent Sample ID: MT4-23-0515A.083.MS

Run in Batch: MT4-23-0515A, Run Date: 05/15/2023 14:30, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 5

| Analyte    | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|------------|-------|-------|-----|-----|-----|--------|
| Antimony   |       | 101   | 75  | 125 | 2   | 20     |
| Arsenic    |       | 98    | 75  | 125 | 0   | 20     |
| Barium     |       | 94    | 75  | 125 | 2   | 20     |
| Beryllium  |       | 94    | 75  | 125 | 3   | 20     |
| Boron      |       | 84    | 75  | 125 | 5   | 20     |
| Cadmium    |       | 92    | 75  | 125 | 2   | 20     |
| Chromium   |       | 99    | 75  | 125 | 2   | 20     |
| Cobalt     |       | 94    | 75  | 125 | 3   | 20     |
| Iron       |       | 96    | 75  | 125 | 3   | 20     |
| Lead       |       | 92    | 75  | 125 | 0   | 20     |
| Lithium    |       | 100   | 75  | 125 | 3   | 20     |
| Molybdenum |       | 106   | 75  | 125 | 2   | 20     |
| Selenium   |       | 102   | 75  | 125 | 1   | 20     |
| Thallium   |       | 95    | 75  | 125 | 0   | 20     |

**Duplicate (DUP)**

Lab Sample ID: MT4-23-0516C.021.DP, Parent Sample ID: S47118.01

Run in Batch: MT4-23-0516C, Run Date: 05/16/2023 15:00, Prep Date: 05/15/2023, Matrix: Liquid, Dilution: 5

| Analyte  | Flags | RPD | RPD CL |
|----------|-------|-----|--------|
| Antimony |       | 2   | 20     |

# QC Report - Batch QC Results

## Metals, Prep Batch ID: MTD-051623-2

Surrogates: No, QC Types: BLK/LCS/MS/MSD

### Blank (BLK)

Lab Sample ID: MT4-23-0516B.014.LRB

Run in Batch: MT4-23-0516B, Run Date: 05/16/2023 12:22, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL  | Units |
|---------|-------|------|------|-------|
| Calcium |       | ND   | 0.05 | mg/L  |

### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-23-0516B.013.LCS

Run in Batch: MT4-23-0516B, Run Date: 05/16/2023 12:17, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 103   | 85  | 115 |

### Matrix Spike (MS)

Lab Sample ID: MT4-23-0516B.039.MS, Parent Sample ID: S48579.01

Run in Batch: MT4-23-0516B, Run Date: 05/16/2023 12:45, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Calcium |       | 103   | 75  | 125 |

### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-23-0516B.040.MSD, Parent Sample ID: MT4-23-0516B.039.MS

Run in Batch: MT4-23-0516B, Run Date: 05/16/2023 12:46, Prep Date: 05/16/2023, Matrix: Liquid, Dilution: 50

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Calcium |       | 107   | 75  | 125 | 3   | 20     |

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-051723-1

Surrogates: No, QC Types: BLK/LCS/MS/MSD

#### Blank (BLK)

Lab Sample ID: MT4-23-0517A.022.LRB

Run in Batch: MT4-23-0517A, Run Date: 05/17/2023 11:43, Prep Date: 05/17/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | Conc | RDL    | Units |
|---------|-------|------|--------|-------|
| Arsenic |       | ND   | 0.0004 | mg/L  |
| Lithium |       | ND   | 0.001  | mg/L  |

#### Laboratory Control Sample (LCS)

Lab Sample ID: MT4-23-0517A.020.LCS

Run in Batch: MT4-23-0517A, Run Date: 05/17/2023 11:33, Prep Date: 05/17/2023, Matrix: Liquid, Dilution: 1

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 98    | 85  | 115 |
| Lithium |       | 97    | 85  | 115 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-23-0517A.046.MS, Parent Sample ID: S48491.01

Run in Batch: MT4-23-0517A, Run Date: 05/17/2023 12:25, Prep Date: 05/17/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 113   | 75  | 125 |
| Lithium |       | 99    | 75  | 125 |

#### Matrix Spike (MS)

Lab Sample ID: MT4-23-0517A.064.MS, Parent Sample ID: S48557.02

Run in Batch: MT4-23-0517A, Run Date: 05/17/2023 12:59, Prep Date: 05/17/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL |
|---------|-------|-------|-----|-----|
| Arsenic |       | 111   | 75  | 125 |
| Lithium |       | 99    | 75  | 125 |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-23-0517A.047.MSD, Parent Sample ID: MT4-23-0517A.046.MS

Run in Batch: MT4-23-0517A, Run Date: 05/17/2023 12:27, Prep Date: 05/17/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 112   | 75  | 125 | 1   | 20     |
| Lithium |       | 103   | 75  | 125 | 4   | 20     |

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-23-0517A.065.MSD, Parent Sample ID: MT4-23-0517A.064.MS

Run in Batch: MT4-23-0517A, Run Date: 05/17/2023 13:00, Prep Date: 05/17/2023, Matrix: Liquid, Dilution: 5

| Analyte | Flags | % Rec | LCL | UCL | RPD | RPD CL |
|---------|-------|-------|-----|-----|-----|--------|
| Arsenic |       | 107   | 75  | 125 | 3   | 20     |
| Lithium |       | 106   | 75  | 125 | 6   | 20     |

# Merit Laboratories Login Checklist

Lab Set ID:S48403

Client:TRC (TRC)

Project: DTE RIVER ROUGE PILOT TEST

Submitted:05/10/2023 12:10 Login User: PFD

Attention: Dave McKenzie

Address: TRC

1540 Eisenhower Place

Ann Arbor, MI 48108

Phone: O:734-585-7824 FAX:

Email: DMcKenzie@trcsolutions.com

| Selection                | Description  | Note   |
|--------------------------|--|--|
| <b>Sample Receiving</b>  |  |  |
| 01.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 3.0 |
| 02.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05.                      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |
| <b>Chain of Custody</b>  |  |  |
| 06.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                              |
| 07.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab                 |
| 08.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC                        |
| 09.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to:               |
| <b>Preservation</b>      |  |  |
| 10.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Do sample have correct chemical preservation           |
| 11.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs)    |
| 12.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?       |
| <b>Bottle Conditions</b> |  |  |
| 13.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                                     |
| 14.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used                |
| 15.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                                     |
| 16.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received                      |
| 17.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration                  |
| 18.                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time                  |
| 19.                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace          |

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: S48403 Submitted: 05/10/2023 12:10

Client: TRC (TRC)

Project: DTE RIVER ROUGE PILOT TEST

Initial Preservation Check: 05/10/2023 12:29 PFD

Preservation Recheck (E200.8): N/A

Attention: Dave McKenzie

Address: TRC

1540 Eisenhower Place  
Ann Arbor, MI 48108

Phone: O:734-585-7824

FAX:

Email: DMcKenzie@trcsolutions.com

| Sample ID | Bottle / Preservation | pH (Orig) | Add ml | pH (New) | Notes |
|-----------|-----------------------|-----------|--------|----------|-------|
| S48403.01 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.02 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.03 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.04 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.05 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.06 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.07 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.08 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.09 | 125ml Plastic HNO3    | <2        |        |          |       |
| S48403.10 | 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 \_\_\_\_\_ 152360

**REPORT TO** **CHAIN OF CUSTODY RECORD** **INVOICE TO**

CONTACT NAME: **DAVE MCKENZIE / VINCE BUENING**  
 COMPANY: **TRC**  
 ADDRESS: **1540 EISENHOWER PL**  
 CITY: **ANN ARBOR** STATE: **MI** ZIP CODE: **48108**  
 P.O. NO.: **18812**  
 E-MAIL ADDRESS: **d.mckenzie@trccompanies.com**  
**v.buening@trccompanies.com**

CONTACT NAME: \_\_\_\_\_  SAME  
 COMPANY: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_  
 CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_  
 PHONE NO.: \_\_\_\_\_ E-MAIL ADDRESS: \_\_\_\_\_

PROJECT NO./NAME: **DTE RIVER ROUGE PROJ** SAMPLER(S) - PLEASE PRINT/SIGN NAME: **B. YELEN**  
 TURNAROUND TIME REQUIRED:  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER \_\_\_\_\_  
 DELIVERABLES REQUIRED:  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER **TRC EDD**

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

|         |              |                     |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---------|--------------|---------------------|--------------|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| SULFATE | FERROUS IRON | APP III + IV METALS | TOTAL AS, LI | TOTAL AS, FC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| X       | X            | X                   | X            | X            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions

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

| MERIT LAB NO.<br><small>FOR LAB USE ONLY</small> | COLLECTION |      | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | # Containers & Preservatives |     |                  |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
|--|------------|------|---------------------------------------|--------|--------------|------------------------------|-----|------------------|--------------------------------|------|------|-------|---------|--------------|---------------------|--------------|--------------|--|--|--|--|
|  | DATE       | TIME |                                       |        |              | NONE                         | HCl | HNO <sub>3</sub> | H <sub>2</sub> SO <sub>4</sub> | NaOH | MeOH | OTHER | SULFATE | FERROUS IRON | APP III + IV METALS | TOTAL AS, LI | TOTAL AS, FC |  |  |  |  |
| 48403.01   | 5.8.23     | 0915 | PT-TW-04R                             | GW     | 4            | 1                            | 2   | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .02  |            | 0955 | PT-TW-02                              |        | 4            | 1                            | 2   | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .03  |            | 1030 | PT-TW-03R                             |        | 4            | 1                            | 2   | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .04  |            | 1105 | PT-TW-01                              |        | 4            | 1                            | 2   | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .05  |            | 1150 | MW-16-01                              |        | 4            | 1                            | 2   | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .06  |            | /    | DWP-01                                |        | 4            | 1                            | 2   | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .07  |            | 1320 | MW-17-15                              |        | 1            |                              |     | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .08  | 5.9.23     | 0935 | MW-17-14                              |        | 1            |                              |     | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .09  |            | 1030 | MW-17-16                              |        | 1            |                              |     | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |
| .10  |            | 1105 | MW-17-17                              |        | 1            |                              |     | 1                |                                |      |      |       |         |              |                     |              |              |  |  |  |  |

RELINQUISHED BY: **B. YELEN**  Sampler DATE: **5.9.23** TIME: **1400**  
 RECEIVED BY: **TRC STOR** DATE: **5.9.23** TIME: **1400**  
 RELINQUISHED BY: **TRC** DATE: **5/10/23** TIME: **920**  
 RECEIVED BY: **JE W** DATE: **5/10/23** TIME: **920**

RELINQUISHED BY: \_\_\_\_\_ DATE: **5/10/23** TIME: **1210**  
 RECEIVED BY: \_\_\_\_\_ DATE: **5/10/23** TIME: **1210**  
 SEAL NO. SEAL INTACT YES  NO  INITIALS \_\_\_\_\_ NOTES: TEMP. ON ARRIVAL **3.0**

**Attachment 5**  
**Redox Tech Summary Report and Injection Logs**

# REDOX TECH, LLC



*"Providing Innovative In Situ Soil and Groundwater Treatment"*

December 5, 2022

Via Email  
Mr. Steve Markesic  
TRC Companies.  
1540 Eisenhower PL  
Ann Arbor, MI 48108  
Phone: (630) 728-7029  
Email: [smarkesic@trccompanies.com](mailto:smarkesic@trccompanies.com)

**RE:** Field Summary Report for the Pilot Study Conducted at the River Rouge Superfund Site

Dear Mr. Markesic,

The following letter provides a brief summary of the field events performed on November 21 and November 22, 2022 at 1 Belanger Park Drive in River Rouge, MI. The purpose of the pilot study was to gauge the effectiveness of a combination of Zero Valent Iron (ZVI) and ferrous sulfate for treating site contaminants, specifically arsenic. Injections took place in four locations in the vicinity of MW-16-01. A total of 1,550 pounds of ZVI and 400 lbs of ferrous sulfate was mixed with potable water to form approximately 700 gallons of slurry and injected. Guar gum was used to help keep the ZVI in suspension throughout the injection process as well as promote anaerobic bioremediation. In general, injections targeted a 10 foot vertical zone from 15 to 25 feet below ground surface (ft bgs). Each location was completed utilizing 1 foot injection intervals to ensure that proper vertical distribution of injected amendments was achieved. Additional specifics, including a summary table and site figures, are provided in **Appendix A**.

Redox Tech was responsible for several additional tasks associated with the scope of work. Two previously installed temporary monitoring wells were removed and abandoned by the field crew. Redox Tech was also responsible for collecting four continuous soil cores to confirm distribution of injected amendments. Samples were collected across the injection zone (~15 to 25 ft bgs) using Geoprobe's DT22 sampling system and tooling. The soil cores provided visual confirmation of successful ZVI distribution within the pilot study area. Two of the four sample locations were subsequently converted into temporary 1-inch diameter wells for future sampling and site monitoring. The temporary wells were installed via direct-push (DPT) drilling techniques and constructed with 10 feet of schedule-40, 10-slot well screens. Each was fitted with a locking j-plug. No surface protection was required or installed.

Remaining open boreholes were sealed with granular bentonite upon completion. General trash was placed in a receptacle designated by TRC. If there are any questions regarding the work, please do not hesitate to email me at [simonton@redox-tech.com](mailto:simonton@redox-tech.com) or by phone at (630) 705-0390.

Regards,

Philip Simonton



**APPENDIX A**

**TABLE 1: INJECTION SUMMARY TABLE**

**FIGURE 1: SITE LAYOUT**

**FIGURE 2: DETAILED INJECTION LOCATION MAP**

**INJECTION LOGS: IP-1 THROUGH IP-4**

**Table 1: Injection Summary Table**

| <b>Injection Point</b> | <b>Date</b> | <b>Number of Intervals</b> | <b>Ferrous Sulfate Injected (lbs)</b> | <b>ZVI Injected (lbs)</b> | <b>Guar Injected (lbs)</b> | <b>Slurry Injected (gals)</b> |
|------------------------|-------------|----------------------------|---------------------------------------|---------------------------|----------------------------|-------------------------------|
| IP-1                   | 11/21/2022  | 10                         | 100                                   | 387.5                     | 9.0                        | 175.0                         |
| IP-2                   | 11/21/2022  | 11                         | 100                                   | 387.5                     | 9.0                        | 175.0                         |
| IP-3                   | 11/21/2022  | 3                          | 27                                    | 105.6                     | 3.0                        | 48.0                          |
| IP-3 B                 | 11/21/2022  | 8                          | 73                                    | 281.9                     | 6.0                        | 127.0                         |
| IP-4                   | 11/21/2022  | 11                         | 100                                   | 387.5                     | 9.0                        | 175.0                         |

|               |  |  |            |              |           |            |
|---------------|--|--|------------|--------------|-----------|------------|
| <b>Totals</b> |  |  | <b>400</b> | <b>1,550</b> | <b>36</b> | <b>700</b> |
|---------------|--|--|------------|--------------|-----------|------------|

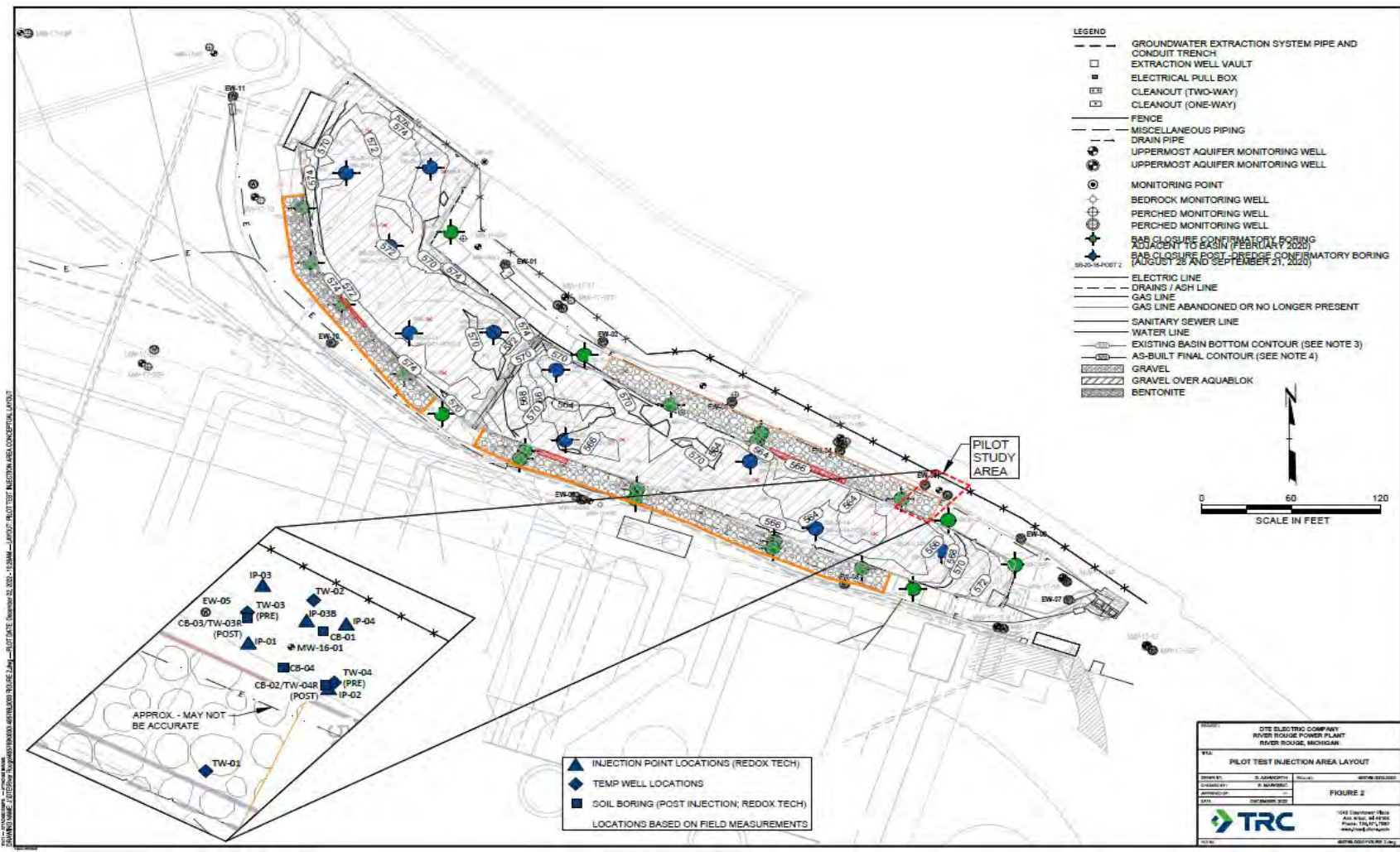
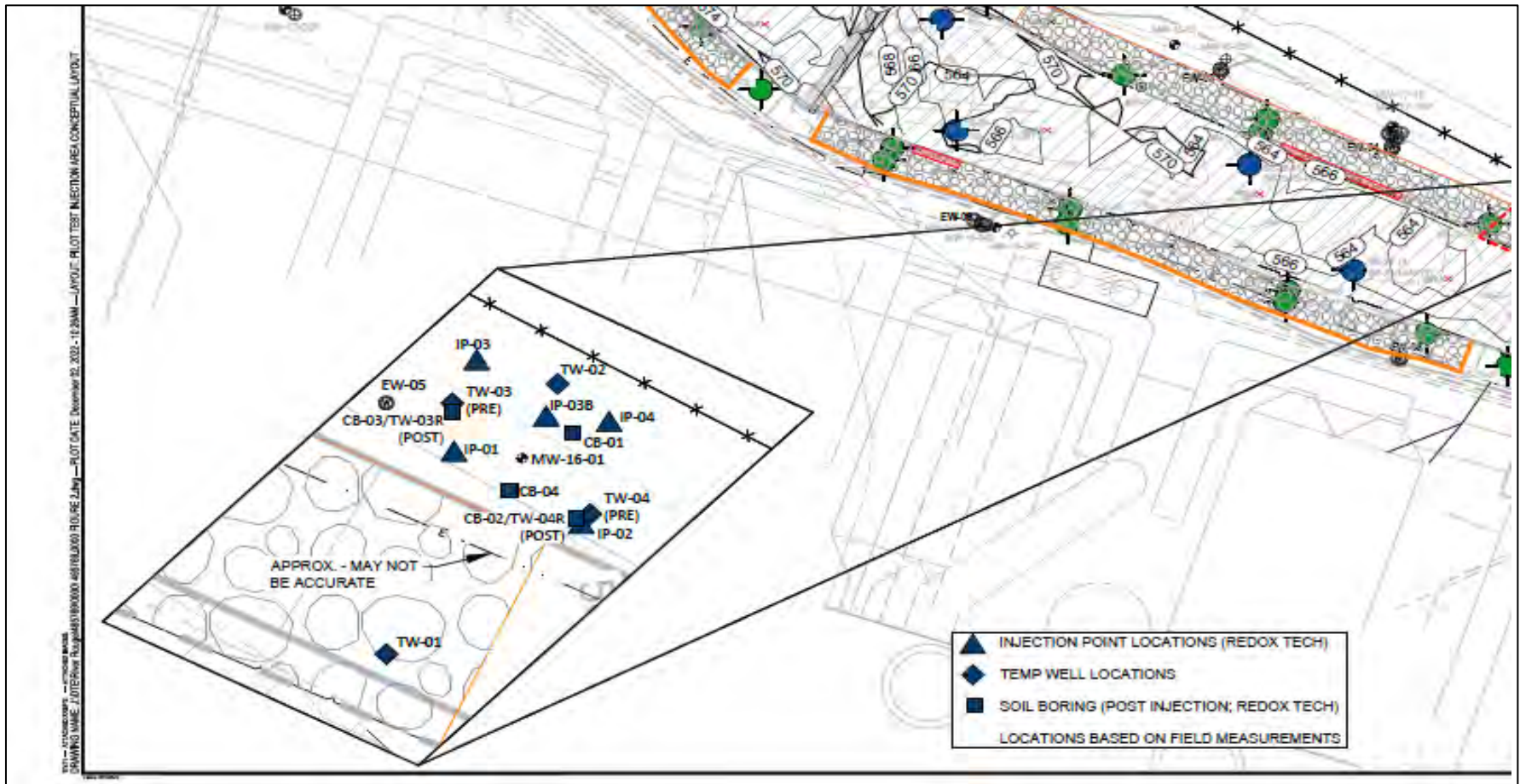


Figure 1. Site Layout



**Figure 2.** Detailed Injection Location Map













# **Attachment 6**

## **Photographic Log**



**Photo 1.** Confirmation Boring CB-01 showing injection slurry intermixed with sand matrix



**Photo 2.** Magnetic Separation\_CB-01 (Areas with significant accumulation)



**Photo 3.** Magnetic Separation\_CB-01 (from area where ZVI intermixed with sand matrix)



**Photo 4.** Magnetic Separation\_CB-04  
(Seam with significant amount of ZVI)



**Photo 5.** Location of seam in CB-04  
(from photo 4)



**Photo 6.** Pilot test area after completion