2023 Annual Groundwater Monitoring Report

Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill Coal Combustion Residual Units

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) Monroe Power Plant (MONPP) Coal Combustion Residual Fly Ash Basin and Vertical Extension Landfill (FAB & VEL) CCR units. 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 Groundwater Monitoring Report for calendar year 2023 activities at the MONPP FAB & VEL CCR units.

The MONPP FAB & VEL were operating under the detection monitoring program at the start of the 2023 annual reporting period and remained in the detection monitoring program through the end of the 2023 annual reporting period. The semiannual detection monitoring events for 2023 were completed in April and October 2023 and included sampling and analyzing groundwater within the groundwater monitoring system for the indicator parameters listed in Appendix III to the CCR Rule. As part of the statistical evaluation, the data collected during detection monitoring events are evaluated to identify statistically significant increases (SSIs) in Appendix III parameters to determine if concentrations in groundwater exceed prediction limits. Detection monitoring data that has been collected and evaluated under §257.90 through §257.98 in 2023 are presented in this report.

From December 2022 to April 2023 DTE Electric performed an additional uppermost aquifer characterization as detailed in the April 2023 *Additional Uppermost Aquifer Characterization Study, Monroe Power Plant Fly Ash Basin CCR Unit, 7955 East Dunbar Road, Monroe, Michigan* (Aquifer Characterization Study) prepared by TRC. The Aquifer Characterization Study presents an analysis of geochemical, stable isotopic, and tritium data collected in December 2022 along with pre-existing data from the MONPP FAB CCR unit that confirms the uppermost aquifer is not in hydraulic communication with the CCR unit and further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water.

No SSIs over prediction limits were noted for the Appendix III constituents in the monitoring wells during the April and October 2023 monitoring events. A potential SSI outside prediction limits was noted for pH in one monitoring well during the April 2023 monitoring event. This potential SSI was not statistically significant (i.e. verification resampling did not confirm the exceedance). Therefore, detection monitoring will continue at the MONPP FAB & VEL CCR units in accordance with §257.94. In addition, based on the artesian conditions, the low permeability of the laterally contiguous underlying natural soils, and the calculated time of travel for groundwater to flow vertically from the MONPP FAB & VEL to the uppermost aquifer, there is no reasonable probability for the uppermost aquifer to have been affected by CCR from FAB & VEL operations that began in 1975.

1.0 Introduction

1.1 Program 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) Monroe Power Plant (MONPP) Coal Combustion Residual Fly Ash Basin and Vertical Extension Landfill (FAB & VEL) CCR units. 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 2023 Annual Groundwater Monitoring Report for calendar year 2023 activities at the MONPP FAB & VEL CCR units (2023 Annual Report).

This 2023 Annual Report presents the monitoring results and the statistical evaluation of the detection monitoring parameters (Appendix III to Part 257 of the CCR Rule) for the April and October 2023 semiannual groundwater monitoring events for the MONPP FAB & VEL CCR units. Detection monitoring for these events continued to be performed in accordance with the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Monroe Power Plant Coal Combustion Residual Fly Ash Basin* (QAPP) (TRC, August 2016; revised March 2017) and statistically evaluated per the *Groundwater Statistical Evaluation Plan –Monroe Power Plant Coal Combustion Residual Fly Ash Basin* (Stats Plan) (TRC, October 2017). As part of the statistical evaluation, the data collected during detection monitoring events are evaluated to identify SSIs of detection monitoring parameters compared to background levels.

Additional site characterization was completed in late 2020 and 2021 with soil hydraulic conductivity testing extending into December 2022, including additional soil borings, cone penetrometer testing (CPT), soil sample collection for additional clay-rich soil laboratory hydraulic conductivity testing and additional slug testing (to measure the hydraulic conductivity of the uppermost aquifer in wells not previously tested) in support of the Preliminary Alternative Liner Demonstration (ALD) that was submitted to EPA on April 10, 2023 (Geosyntec 2023). The ALD concludes that there is no reasonable probability that water from FAB will cause releases to groundwater throughout the active life of the CCR unit at concentrations that will exceed the groundwater protection standard at the waste boundary.

From December 2022 to April 2023 DTE Electric performed an additional uppermost aquifer characterization as detailed in the April 2023 *Additional Uppermost Aquifer Characterization Study, Monroe Power Plant Fly Ash Basin CCR Unit, 7955 East Dunbar Road, Monroe, Michigan* (Aquifer Characterization Study) prepared by TRC (TRC, April 2023). A copy of the Aquifer Characterization Study is included in Appendix A. The Aquifer Characterization Study presents an analysis of geochemical, stable isotopic, and tritium data collected in December

2022 along with pre-existing data from the MONPP FAB CCR unit that confirms the uppermost aquifer is not in hydraulic communication with the CCR unit and further demonstrates that the uppermost aquifer groundwater is unaffected by the CCR unit water as discussed more in Section 4.0 of this report.

1.2 Site Overview

The MONPP FAB & VEL is located about one mile southwest of the MONPP in Section 16, Township 7 South, Range 9 East at 7955 East Dunbar Road, Monroe, Monroe County, Michigan (Figure 1). The MONPP FAB & VEL is bounded by Dunbar Road and Plum Creek to the north and northeast, Interstate 75 to the northwest, a 200-acre peninsula into Lake Erie to the east and southeast, Lake Erie to the south, and a large open field to the southwest (Figure 2).

The property has been used continuously for the operation of the MONPP FAB & VEL since approximately 1975 and is constructed over a natural clay-rich soil base. The MONPP FAB & VEL are owned by DTE Electric, and received coal ash from DTE Electric's MONPP through December 29, 2023. The MONPP FAB & VEL are operated in accordance with Michigan Part 115 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended, and are licensed as a Coal Ash Surface Impoundment and a Coal Ash Landfill under the current operating license number 9579.

1.3 Geology/Hydrogeology

The MONPP FAB & VEL CCR units are located southwest of Plum Creek and immediately north of Lake Erie. The MONPP FAB & VEL CCR units uppermost aquifer consists of saturated limestone and a 5- to 10-foot-thick layer of weathered limestone mixed with clay, sand, and/or gravel, both present beneath at least 14 to 34 feet of thick contiguous silty clay-rich soil that serves as a natural confining hydraulic barrier that isolates the underlying uppermost aquifer (TRC, 2017 and Geosyntec, 2023). The limestone bedrock aquifer is artesian in every location except MW-16-01, where the static water level was approximately 1 to 2 feet below ground surface (ft bgs).

Potentiometric groundwater elevation data from 2016 through 2023 show that there is horizontal groundwater flow potential within the upper aquifer unit generally to the northeast towards Plum Creek. The average hydraulic gradient to the northeast is on the order of 0.002 foot/foot along the eastern part of the MONPP FAB & VEL to 0.004 to 0.005 foot/foot in the center and northwestern part of the FAB & VEL, with an overall mean of 0.004 foot/foot in 2023.

2.0 Groundwater Monitoring

2.1 Monitoring Well Network

A groundwater monitoring system has been established for the MONPP FAB & VEL CCR units as detailed in the Groundwater Monitoring System Summary Report – Monroe Power Plant Coal Combustion Residual Fly Ash Basin (GWMS Report) (TRC, October 2017). The detection monitoring well network for the MONPP FAB & VEL CCR units currently consists of seven monitoring wells that are screened in the uppermost aquifer. Monitoring wells MW-16-01 through MW-16-07 are located around the perimeter of the MONPP FAB & VEL CCR units and provide data on both background and downgradient groundwater quality that has not been affected by the CCR units (total of seven background/downgradient monitoring wells). The monitoring well locations are shown on Figure 2.

2.2 Semiannual Groundwater Monitoring

The semiannual monitoring parameters for the detection groundwater monitoring program were selected per the CCR Rule's Appendix III to Part 257 – Constituents for Detection Monitoring. The Appendix III indicator parameters consist of boron, calcium, chloride, fluoride, pH (field reading), sulfate, and total dissolved solids (TDS) and were analyzed in accordance with the sampling and analysis plan included within the QAPP. In addition to pH, the collected field parameters included dissolved oxygen, oxidation reduction potential, specific conductivity, temperature, and turbidity.

2.2.1 Data Summary

The first semiannual groundwater detection monitoring event for 2023 was performed April 6, 2023 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 seven monitoring well locations. Groundwater samples were collected from the seven detection monitoring wells for the Appendix III indicator parameters and field parameters. A summary of the groundwater data collected during the April 2023 event is provided on Table 1 (static groundwater elevation data), Table 2 (field data), and Table 3 (analytical results).

The second semiannual groundwater detection monitoring event for 2023 was performed on October 24 and 25, 2023 by TRC personnel and samples were analyzed by Eurofins in accordance with the QAPP. Static water elevation data were collected at all seven monitoring well locations including a second semiannual event gauging event on December 11, 2023 as some October 2023 static water level elevations were not consistent with previous static water level elevation measurements. The static water level elevations collected in December 2023 were consistent with previous data and therefore were used for the second semiannual 2023 event groundwater flow evaluation. Groundwater samples were collected from the seven detection monitoring wells for the Appendix III indicator parameters and field parameters. A summary of the groundwater data collected during the second semiannual groundwater detection monitoring event is provided on Table 1 (static groundwater elevation data), Table 2 (field data), and Table 4 (analytical results). The laboratory analytical reports are included in Appendix B.

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 C.

2.2.3 Groundwater Flow Rate and Direction

Groundwater elevation data collected during the April sampling event and the December 2023 gauging event continue to show that groundwater within the uppermost aquifer generally flows to the northeast. Groundwater elevation data collected during an initial October 2023 gauging event had some anomalously low static water level elevation readings for some of the artesian well locations compared to historical water elevations that are generally similar event to event. Therefore, a second groundwater static water elevation data collection event was completed in December 2023 to further assess the irregular readings. The groundwater elevations from December 2023 were consistent with previous 2017 to 2023 readings, further indicating the October 2023 readings were erroneous and not representative of groundwater conditions. Therefore, the December 2023 groundwater elevation data were used for evaluating groundwater flow for the second semiannual 2023 event. Groundwater potentiometric surface elevations measured during the April and December 2023 events are provided on Table 1 and were used to construct the groundwater potentiometric surface maps shown on Figure 3 and Figure 4, respectively.

The groundwater flow rate and direction are consistent with previous monitoring events. The average hydraulic gradients throughout the MONPP FAB/VEL CCR unit during the April and December 2023 events was approximately 0.004 ft/ft. Using the average hydraulic conductivity of 14 feet/day (TRC, 2017 and Geosyntec, 2021) and an assumed effective porosity of 0.1, the estimated seepage velocity is 0.56 feet/day (approximately 200 feet/year) throughout the 2023 monitoring period.

The general flow rate and direction from both events are similar to that identified in previous monitoring rounds and continues to demonstrate that the monitoring wells are appropriately positioned to detect the presence of Appendix III parameters that could potentially migrate from the MONPP FAB & VEL CCR units.

3.0 Statistical Evaluation

3.1 Establishing Background Limits

As discussed in the Stats Plan, intrawell statistical methods for MONPP FAB & VEL were selected based on the geology and hydrogeology at the site (primarily the presence of clay/hydraulic barrier and the hydraulic separation between the CCR units and underlying uppermost aquifer), in addition to other supporting lines of evidence that the aquifer is unaffected by the CCR units that have been further demonstrated in the ALD and Aquifer Characterization Study. An intrawell statistical approach requires that each monitoring well doubles as a background and compliance well, where data from each individual well during a detection monitoring event is compared to a statistical limit developed using the background dataset from that same well.

Per the Stats Plan, background limits were established for the Appendix III indicator parameters following the collection of at least eight background monitoring events using data collected from each of the seven established detection monitoring wells (MW-16-01 through MW-16-07). The initial statistical evaluation of the background data is presented in the 2017 Annual Report (TRC, January 2018). The Appendix III background limits for each monitoring well will be used throughout the detection monitoring period to determine whether groundwater has been impacted from the MONPP FAB & VEL CCR units by comparing concentrations in the detection monitoring wells to their respective background limits for each Appendix III indicator parameter.

Consistent with the Stats Plan and the *USEPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance, USEPA, 2009), prediction limits are periodically updated to reflect the additional data and additional temporal variability observed over time. The Appendix III prediction limits at MONPP FAB & VEL were updated per the Stats Plan and Unified Guidance in December 2021 to incorporate additional data since 2017 as presented in the December 15, 2021 Technical Memorandum, *Prediction Limit Update – DTE Electric Company, Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill* (included as Appendix C in the *2021 Annual Groundwater Monitoring Report – DTE Electric Company, Sibley Quarry Landfill, Coal Combustion Residual Unit*, TRC, January 2022).

3.2 Data Comparison to Background Limits – First 2023 Semiannual Event (April 2023)

The concentrations of the indicator parameters in each of the detection monitoring wells (MW-16-01 through MW-16-07) were compared to their respective statistical background limits calculated from the background data collected from each individual well (i.e., monitoring data from MW-16-01 is compared to the background limit developed using the background dataset from MW-16-01, and so forth). The comparisons for the April detection monitoring event are presented on Table 3. The statistical evaluation of the April 2023 detection monitoring parameters showed a potential initial SSI outside the prediction limits for pH at MW-16-05.

The initial observation of a constituent concentration outside the established background limits does not constitute a SSI. Per the Stats Plan, if there is an initial exceedance of a prediction

limit for one or more of the constituents that have not been attributed to an alternate source, the well(s) of concern can be resampled within 30 days of the completion of the initial statistical analysis for verification purposes. Therefore, verification resampling was performed at MW-16-05 for pH as described in Section 3.3. There were no potential SSIs compared to background for any of the analyzed parameters other than pH.

3.3 Verification Resampling for the First 2023 Semiannual Event

Verification resampling is recommended per the Stats Plan and the Unified Guidance to achieve performance standards as specified by §257.93(g) in the CCR Rule. Per the Stats Plan, if there is an exceedance of a prediction limit for one or more of the parameters, the well(s) of concern will be resampled within 30 days of the completion of the initial statistical analysis. Only constituents that initially exceed their statistical limit (i.e., have no previously recorded SSIs) will be analyzed for verification purposes. As such, verification resampling was conducted on June 12, 2023, by TRC personnel for pH at MW-16-05. A summary of the pH data collected during the verification resampling event is provided on Table 3. The associated data quality review is included in Appendix C. The MW-16-05 (pH) verification result was within the prediction limits; consequently, the initial potential SSI for pH at MW-16-05 was not confirmed. Therefore, in accordance with the Stats Plan and the Unified Guidance, this initial pH exceedance is not statistically significant, and no SSIs were recorded at MW-16-05 during the April 2023 event.

3.4 Data Comparison to Background Limits – Second 2023 Semiannual Event (October 2023)

The concentrations of the indicator parameters in each of the detection monitoring wells (MW-16-01 through MW-16-07) were compared to their respective statistical background limits calculated from the background data collected from each individual well (i.e., monitoring data from MW-16-01 is compared to the background limit developed using the background dataset from MW-16-01, and so forth). The comparisons for the October detection monitoring event are presented on Table 4. Based on the statistical evaluation of the October 2023 detection monitoring parameters, there were no SSIs compared to background for any of the constituents.

4.0 Additional Aquifer Characterization

From December 2022 to April 2023 DTE Electric had an additional uppermost aquifer characterization performed as described in the April 2023 Additional Characterization Study (TRC, April 2023) prepared by TRC. From December 9 to 13, 2022 TRC collected groundwater samples from the MONPP FAB groundwater monitoring well network (MW-16-01 through MW-16-07), a water sample from the FAB discharge sampling point, five CCR pore water samples from existing piezometers (PZ-01 through PZ-05) within the FAB, and surface water samples from Plum Creek and Lake Erie.

These samples were analyzed for:

- Calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), sulfate (SO_4), chloride (Cl), HCO_3 and alkalinity (bicarbonate (HCO_3), carbonate (CO_3) and total alkalinity), boron (B), lithium (Li) and strontium (Sr);
- Stable isotopes $\delta^{11}B$, $\delta^{87}Sr$ and $\delta^{7}Li$, $\delta^{2}H$, $\delta^{18}O$; and
- Tritium.

The geochemical, stable isotopic, and tritium data collected in December 2022 along with pre-existing data collected from the MONPP FAB CCR unit was evaluated and confirmed that the uppermost aquifer is not in hydraulic communication with the CCR unit water with the following multiple lines of evidence:

- The geochemical composition of the uppermost aquifer groundwater is statistically distinct from the CCR unit water;
- The geochemical composition of the uppermost aquifer groundwater is the same as regional groundwater, as published in USGS reports, demonstrating that the uppermost aquifer groundwater is unaffected by the CCR unit water;
- The source of lithium, boron, strontium, hydrogen, and oxygen in the uppermost aquifer groundwater is from upgradient groundwater and, as demonstrated by the stable isotope data is distinct from the CCR unit water; and
- Age dating with tritium validates that the uppermost aquifer groundwater is not hydraulically connected to the CCR unit.

These multiple lines of evidence come together in an additive fashion to further validate the conceptual site model established in the ALD (Geosyntec, April 2023) and previous studies, which holds that the contiguous glacially compacted natural clay-rich soil beneath the FAB serves as a natural confining hydraulic barrier isolating the underlying uppermost aquifer from the CCR unit and maintains that the uppermost aquifer groundwater is unaffected by the CCR unit water (TRC, April 2023).

5.0 Conclusions and Recommendations

No SSIs over background limits were noted for the groundwater monitoring wells during the 2023 semiannual groundwater monitoring events; therefore, detection monitoring will continue at the MONPP FAB & VEL in accordance with §257.94.

In addition, as discussed above, and in the GWMS Report as well as in the ALD and Aquifer Characterization Study, based on the artesian conditions, the low permeability of the laterally contiguous underlying natural soils, and the calculated time of travel for groundwater to flow vertically from the MONPP FAB & VEL to the uppermost aquifer, there is no reasonable probability for the uppermost aquifer to have been affected by CCR from FAB & VEL operations that began in 1975.

No corrective actions were performed in 2023. The next semiannual monitoring event at the MONPP FAB & VEL CCR units is scheduled for the second calendar quarter of 2024.

6.0 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
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill
Monroe, Michigan

CERTIFICATION

I hereby certify that the annual groundwater monitoring and corrective action report presented within this document for the MONPP FAB & VEL CCR units 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: David B. McKenzie, P.E.	Expiration Date: December 17, 2025	
Company: TRC Engineers Michigan, Inc.	Date: January 31, 2024	

January 31, 2024

7.0 References

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Tables

Table 1

Summary of Groundwater Elevation Data – April and December 2023

Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program

Monroe, Michigan

Well ID	MW-16-01		MW-16-02		MW-16-03		MW-16-04		MW-16-05		MW-16-06		MW-16-07	
Date Installed	2/17/2016		2/18/2016		2/16/2016		2/15/2016		4/13/2016		4/13/2016		4/14/2016	
TOC Elevation	581.74		581.81		579.95		585.54		580.42		581.94		578.40	
Geologic Unit of Screened Interval	Silt/Limestone Interface		Silt/Limestone Interface		Sand & Silty Clay Limestone Interface		Silty Sand and Gravel		Limestone		Gravel and Cobbles		Silt/Limestone Interface	
Screened Interval Elevation	530.9 to 525.9		526.4 to 521.4		540.3 to 535.3		541.6 to 536.6		540.5 to 535.5		534.2 to 529.2		540.4 to 535.4	
Unit	ft BTOC	ft	ft BTOC	ft	ft BTOC	ft	ft BTOC	ft	ft BTOC	ft	ft BTOC	ft	ft BTOC	ft
Measurement Date	Depth to Water	GW Elevation	Depth to Water	GW Elevation	Depth to Water	GW Elevation	Depth to Water	GW Elevation	Depth to Water	GW Elevation	Depth to Water	GW Elevation	Depth to Water	GW Elevation
4/6/2023	4.70	577.04	-3.09	584.90	-10.74	590.69	-15.36	600.90	-15.45	595.87	0.00	581.94	-6.97	585.37
12/11/2023	4.90	576.84	-2.61	584.42	-10.65	590.60	-14.81	600.35	-12.73	593.15	0.73	581.21	-5.84	584.24

Notes:

Negative depth to water measurement indicates artesian conditions, actual measured water level is above the top of casing.

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

ft BTOC - feet below top of casing

Table 2
Summary of Field Parameters – April, June and October 2023
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program
Monroe, Michigan

Sample Location	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Specific Conductivity (umhos/cm)	Temperature (°C)	Turbidity (NTU)
MW-16-01	4/6/2023	2.78	-20.2	7.0	1,533	10.6	2.78
	10/25/2023	2.81	37.7	6.9	1,727	12.9	1.52
MW-16-02	4/6/2023	1.18	-19.3	6.9	1,681	10.8	1.76
	10/24/2023	0.54	-11.8	7.1	1,834	12.1	0.00
MW-16-03	4/6/2023	1.00	-12.1	7.0	1,779	11.5	5.00
	10/24/2023	0.53	-39.4	7.1	1,893	12.4	4.00
MW-16-04	4/6/2023	1.80	-26.2	7.1	1,669	11.1	2.49
	10/24/2023	0.54	-179.6	7.2	1,752	11.8	0.68
MW-16-05	4/6/2023	1.10	42.4	6.8	1,678	11.8	3.05
	6/12/2023[(1)]	0.09	-186.3	7.1	2,261	11.8	14.9
	10/24/2023	0.51	-92.1	7.1	1,790	12.4	1.25
MW-16-06	4/6/2023	1.46	-38.1	7.0	1,637	10.8	1.26
	10/25/2023	2.39	-13.3	7.1	1,736	13.6	6.40
MW-16-07	4/6/2023	1.10	-10.0	7.1	1,663	11.5	1.33
	10/25/2023	2.50	1.9	6.9	1,670	12.3	1.71

Notes:
mg/L -Milligrams per Liter.
mV - Millivolts.
SU - Standard Units.
umhos/cm - Micromhos per centimeter.
°C - Degrees Celsius.
NTU - Nephelometric Turbidity Unit
(1) Results shown for verification sampling performed on 6/12/2023.

Table 3
Comparison of Appendix III Parameter Results to Background Limits – April and June 2023
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program
Monroe, Michigan

Sample Location:		MW-16-01		MW-16-02		MW-16-03		MW-16-04		MW-16-05			MW-16-06		MW-16-07	
Sample Date:		4/6/2023	PL	4/6/2023	PL	4/6/2023	PL	4/6/2023	PL	4/6/2023	6/12/2023[(1)]	PL	4/6/2023	PL	4/6/2023	PL
Constituent	Unit	Data		Data		Data		Data		Data			Data		Data	
Appendix III																
Boron	ug/L	290	300	430	450	480	500	180	210	240	--	270	360	390	230	250
Calcium	ug/L	370,000	440,000	370,000	430,000	390,000	470,000	480,000	600,000	390,000	--	440,000	370,000	420,000	380,000	440,000
Chloride	mg/L	10	12	13	15	19	20	34	36	11	--	12	12	12	7.9	12
Fluoride	mg/L	1.7	1.8	1.6	1.7	1.6	1.7	0.98	1.1	1.5	--	1.6	1.6	1.7	1.5	1.7
pH, Field	su	7.0	6.9 - 8.6	6.9	6.9 - 7.3	7.0	6.7 - 7.3	7.1	7.0 - 7.5	**6.8**	7.1	6.9 - 7.7	7.0	7.0 - 7.3	7.1	6.9 - 7.4
Sulfate	mg/L	1,500	1,600	1,500	1,700	1,600	1,700	1,400	1,500	1,400	--	1,600	1,500	1,600	1,400	1,600
Total Dissolved Solids	mg/L	2,100	2,200	2,200	2,300	2,300	2,400	2,100	2,300	2,100	--	2,200	2,200	2,300	2,100	2,200
Part 115 Parameters																
Iron	ug/L	150	n<8	280	n<8	1,200	n<8	< 100	n<8	1,000	--	n<8	650	n<8	770	n<8

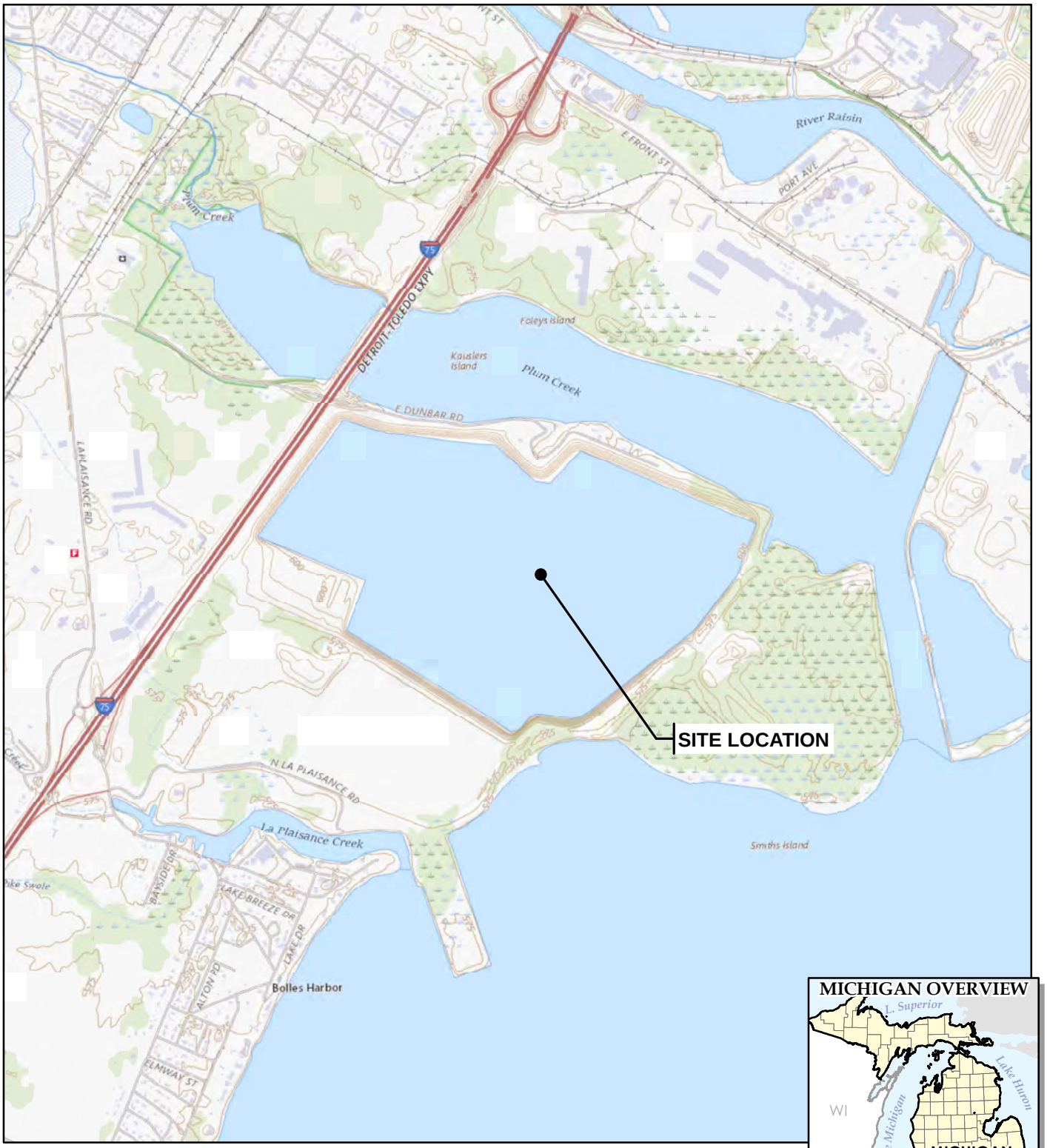
Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
-- = not analyzed
All metals were analyzed as total unless otherwise specified.
Bold font indicates an exceedance of the Prediction Limit (PL).
(1) - Results shown for verification sampling performed on 6/12/2023.

Table 4
Comparison of Appendix III Parameter Results to Background Limits – October 2023
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program
Monroe, Michigan

Sample Location:		MW-16-01		MW-16-02		MW-16-03		MW-16-04		MW-16-05		MW-16-06		MW-16-07	
Sample Date:		10/25/2023	PL	10/24/2023	PL	10/24/2023	PL	10/24/2023	PL	10/24/2023	PL	10/25/2023	PL	10/25/2023	PL
Constituent	Unit	Data		Data		Data		Data		Data		Data		Data	
Appendix III															
Boron	ug/L	260	300	390	450	400	500	150	210	210	270	270	390	170	250
Calcium	ug/L	400,000	440,000	390,000	430,000	380,000	470,000	470,000	600,000	390,000	440,000	340,000	420,000	360,000	440,000
Chloride	mg/L	9.9	12	13	15	19	20	35	36	11	12	11	12	7.2	12
Fluoride	mg/L	1.6	1.8	1.5	1.7	1.5	1.7	0.99	1.1	1.5	1.6	1.5	1.7	1.3	1.7
pH, Field	su	6.9	6.9 - 8.6	7.1	6.9 - 7.3	7.1	6.7 - 7.3	7.2	7.0 - 7.5	7.1	6.9 - 7.7	7.1	7.0 - 7.3	6.9	6.9 - 7.4
Sulfate	mg/L	1,500	1,600	1,600	1,700	1,700	1,700	1,400	1,500	1,400	1,600	1,500	1,600	1,400	1,600
Total Dissolved Solids	mg/L	2,000	2,200	2,100	2,300	2,400	2,400	2,000	2,300	1,900	2,200	1,900	2,300	1,900	2,200

Notes:
ug/L - micrograms per liter.
mg/L - milligrams per liter.
SU - standard units; pH is a field parameter.
All metals were analyzed as total unless otherwise specified.

Figures



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
TRC - GIS

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
SITE LOCATION MAP

DRAWN BY:	A. ADAIR
CHECKED BY:	H. SCHNAIDT
APPROVED BY:	V. BUENING
DATE:	JANUARY 2024
PROJ. NO.:	518728.0001
FILE:	Jan2024_518728-0001_SLM.mxd

FIGURE 1

T:\1-PROJECTS\DTE Energy\MonroeMI_PP\518728_0006\Jan2024_518728-0001_SLM.mxd -- Saved By: AADAIR on 12/14/2023, 10:36:08 AM

LEGEND

- MONITORING WELLS
- APPROXIMATE BOUNDARY OF FLY ASH BASIN
- APPROXIMATE BOUNDARY OF VERTICAL EXTENSION LANDFILL

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2021.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN MARCH AND MAY 2016.
3. SURFACE WATER SAMPLE LOCATION IS APPROXIMATE.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:

DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:

MONITORING NETWORK AND SITE PLAN

DRAWN BY:	A. ADAIR	PROJ NO.:	518728.0001
CHECKED BY:	H. SCHNAIDT		
APPROVED BY:	V. BUENING		**FIGURE 2**
DATE:	JANUARY 2024		

TRC

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FILE NO.: Jan2024_518728-0001_SITEPLAN.mxd

TRC - GIS
Coordinate System: NAD 1983 UTM Zone 17N (Meter)
Map Rotation: 0
Plot Date: 12/18/2023, 13:00:50 PM by AADAIR -- LAYOUT: ANSI B (11"x17")
Path: T:\1-PROJECTS\DTE Energy\MonroeMI_PP\518728_0006\Jan2024_518728-0001_SITEPLAN.mxd

LEGEND

- MONITORING WELL
- APPROXIMATE BOUNDARY OF FLY ASH BASIN
- APPROXIMATE BOUNDARY OF VERTICAL EXTENSION LANDFILL
- POTENTIOMETRIC SURFACE CONTOUR
- INFERRED POTENTIOMETRIC SURFACE CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION
- (582.84) STATIC WATER ELEVATION IN FEET (NAVD, 1988)

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2021.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN MARCH AND MAY 2016.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.
4. SURFACE WATER SAMPLE LOCATION IS APPROXIMATE.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
POTENTIOMETRIC SURFACE MAP
APRIL 2023

DRAWN BY:	A. ADAIR	PROJ NO.:	518728.0001
CHECKED BY:	H. SCHNAIDT		
APPROVED BY:	V. BUENING		**FIGURE 3**
DATE:	JANUARY 2024		

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
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FILE NO.: 518728_010_APRIL23_GW.mxd

Plot Date: 12/19/2023, 10:00:30 AM by AADAIR -- LAYOUT: ANSI B (11"x17")
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Coordinate System: NAD 1983 UTM Zone 17N (Meter)
Map Rotation: 0

TRC - GIS

LEGEND

- MONITORING WELL
- APPROXIMATE BOUNDARY OF FLY ASH BASIN
- APPROXIMATE BOUNDARY OF VERTICAL EXTENSION LANDFILL
- POTENTIOMETRIC SURFACE CONTOUR
- INFERRED POTENTIOMETRIC SURFACE CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION
- (582.84) STATIC WATER ELEVATION IN FEET (NAVD, 1988)

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2021.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN MARCH AND MAY 2016.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.
4. SURFACE WATER SAMPLE LOCATION IS APPROXIMATE.

N

0 600 1,200 Feet

1 " = 600 '
1:7,200

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
POTENTIOMETRIC SURFACE MAP
DECEMBER 2023

DRAWN BY:	A. ADAIR	PROJ NO.:	518728.0001
CHECKED BY:	H. SCHNAIDT		
APPROVED BY:	V. BUENING		**FIGURE 4**
DATE:	JANUARY 2024		

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
www.trccompanies.com

FILE NO.: Jan2024_518728-0001_POT.mxd

TRC - GIS
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Appendix A
April 2023 Aquifer Characterization Study

Additional Uppermost Aquifer Characterization Study

Monroe Power Plant Fly Ash Basin CCR Unit, 7955 East Dunbar Road, Monroe, Michigan

April 2023

Prepared For:

DTE Electric Company

Prepared By:

TRC
1540 Eisenhower Pl.
Ann Arbor, MI 48108

Clint Miller, PhD., PG.
Senior Project Geochemist

Alexander Eklund
Data Scientist

Vincent Buening, C.P.G.
Senior Project Manager

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FIGURES

APPENDICES

1.0 Introduction

1.1 Purpose and Objectives

The objective of this report is to document TRC's Additional Aquifer Characterization Study performed at the Monroe Power Plant (MONPP) Fly Ash Basin (FAB) Coal Combustion Residual unit (hereinafter "the CCR unit"), which is located at the Monroe Power Plant, Monroe, Michigan. This study was performed to determine if additional data, collected in December 2022, provide further lines of evidence to substantiate that groundwater in the uppermost aquifer is unimpacted by CCR operations. This additional uppermost aquifer characterization study is complementary to the preliminary alternative liner demonstration (ALD) prepared in accordance with 40 CFR §257.71 (d) that was submitted to the United States Environmental Protection Agency (EPA) on November 30, 2021 (Geosyntec, November 2021), and the previous studies (TRC, 2017, Detroit Edison, 1995) performed to establish the groundwater monitoring program developed pursuant to 40 CFR §257.91.

Previous studies performed at the site including the ALD have demonstrated and verified that the site is underlain by a thick laterally- continuous clay-rich deposit which meets the requirements of an alternate liner per 40 CFR §257.71 (d). The site characterization and groundwater data collected to-date from the CCR unit indicate that the natural underlying clay hydraulically separates the CCR unit from the uppermost aquifer and that groundwater quality is not affected by the CCR unit or any associated management activities. The data and analysis presented within the preliminary ALD further confirms the pre-existing site conceptual model, and through rigorous field testing and site-specific flow and transport modeling demonstrates the effectiveness of the clay. The preliminary ALD demonstrates that there is no reasonable probability that water from the CCR unit will result in a release to the uppermost aquifer throughout the CCR units active life, nor will data exceed the groundwater protection standard at the waste boundaries over the projected active life and post closure of the CCR unit.

This additional characterization study included the collection of additional groundwater samples during December 2022, along with further analyses of existing data to further characterize the uppermost aquifer. Water samples were collected from the CCR unit groundwater monitoring well network, the pore water from the CCR Fly Ash Basin (FAB), the FAB discharge point, and from nearby surface water bodies (Plum Creek and Lake Erie). Laboratory analysis performed during December 2022 included additional geochemical indicators, stable isotopes, and radiometric isotopes. Stable isotopes do not decay, but preferentially fractionate under physical, chemical and or environmental conditions. Radiometric isotopes are unstable and do decay; decay is at a constant rate, and therefore can be useful for age-dating different water sources. Additionally, data collected as part of monitoring under the state program (2020 to 2022) and the federal CCR program (2015-2022) were used as described and presented within this report.

In summary, the data collected in this assessment confirms that the uppermost aquifer is not in communication with the CCR unit water, groundwater geochemistry in the uppermost aquifer is reflective of the geogenic natural environmental conditions, and is therefore unaffected by the CCR unit. Each of the multiple lines of evidence presented in this report independently supports this conclusion as discussed below.

1.2 Site Overview and Operational History

The MONPP FAB is located about one mile southwest of the MONPP in Section 16, Township 7 South, Range 9 East at 7955 East Dunbar Road, Monroe, Monroe County, Michigan (Figure 1). The MONPP FAB is bounded by Dunbar Road and Plum Creek to the north and northeast, Interstate 75 to the northwest, a 200-acre peninsula into Lake Erie to the east and southeast, Lake Erie to the south, and a large open field to the southwest (Figure 2).

The property has been used continuously for the operation of the CCR unit since approximately 1975 and is constructed over a natural clay-rich soil base. The MONPP FAB are owned by DTE Electric, and currently receive coal ash from DTE Electric's MONPP.

The MONPP FAB is operated in accordance with Michigan Part 115 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended, and are licensed as a Coal Ash Surface Impoundment and a Coal Ash Landfill under the current operating license number 9579.

1.3 Geology/Hydrogeology

The geologic and hydrogeologic conditions at the CCR unit have been extensively studied and these studies (including TRC, 2017, Detroit Edison 1995 and Geosyntec 2020), provide specific details on the hydrogeology and geology in the region, and at the MONPP. A brief discussion is provided below.

The CCR unit is located approximately 200 feet southwest of Plum Creek and approximately 250 feet northwest of Lake Erie. The uppermost aquifer consists of saturated limestone of the Bass Islands Group and a 5- to 10-foot thick layer of weathered limestone mixed with clay, sand, and/or gravel just above the limestone interface, both present beneath at least 14 to 34 feet of a contiguous glacially compacted natural clay liner that serves as a natural confining hydraulic barrier isolating the underlying uppermost aquifer (TRC, 2017 and Geosyntec, 2021). The limestone bedrock aquifer is artesian in every location except MW 16-01, where the static water level was approximately 1 to 2 feet below ground surface (ft bgs). Monitoring wells MW-16-01 through MW-16-07 are all screened in the top of the limestone uppermost aquifer, which is up to 350 feet thick in Monroe County.

Potentiometric groundwater elevation data from 2016 through 2022 suggest that there is horizontal flow within the upper aquifer unit generally to the northeast towards Plum Creek (TRC, January 2023). The average hydraulic gradient was 0.004 foot/foot in 2022 (Figure 4).

2.0 Additional Data Collection

The additional groundwater, CCR unit FAB water and surface water sample collection was performed from December 9 to 13, 2022 to provide data to further characterize the uppermost aquifer at the CCR unit. These samples were collected in general accordance with the procedures outlined in the *CCR Groundwater Monitoring and Quality Assurance Project Plan – DTE Electric Company Monroe Power Plant Coal Combustion Residual Fly Ash Basin* (QAPP) (TRC, August 2016; revised March 2017).

2.1 Groundwater Sample Collection

Groundwater samples were collected from the seven monitoring wells within the CCR unit uppermost aquifer monitoring well network (MW-16-01 through MW-16-07) (Figure 2).

2.2 Fly Ash Basin Water Sample Collection

A water sample was collected from the FAB at the discharge point to Lake Erie (called SW-001 for the December 2022 sample) (Figure 2). In addition, water samples were collected from five existing piezometers (PZ-01 through PZ-05) that were installed in late 2020 to collect pore water samples from the CCR within the FAB (Figure 2).

2.3 Surface Water Sample Collection

Surface water samples (P-01 from Plum Creek and LE-01 from Lake Erie) were collected from the approximate locations shown on Figure 3.

The samples were submitted to the laboratories listed below for analysis of the following parameters to support the additional uppermost aquifer characterization:

- Eurofins Environment Testing for analysis of calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), sulfate (SO_4), chloride (Cl), HCO_3 and alkalinity (bicarbonate (HCO_3), carbonate (CO_3) and total alkalinity), boron (B), lithium (Li) and strontium (Sr);
- ALS Scandinavia for analysis of $\delta^{11}B$, $\delta^{87}Sr$ and $\delta^{7}Li$;
- Waterloo Environmental Isotope Laboratory for analysis of $\delta^{2}H$ and $\delta^{18}O$; and
- Miami Tritium Laboratory for analysis of tritium.

Note: the δ notation is explained in Section 3. The December 2022 water data are summarized in Tables 1 through 3 and the December 2022 laboratory data for these water samples are provided in Appendix A.

3.0 Geochemical and Isotopic Data Analysis

3.1 Geochemistry

In order to provide a comprehensive evaluation of the data collected in December 2022, all of the existing Appendix III and Appendix IV data from groundwater samples collected from 2016 through 2022, as provided in the 2017 to 2022 Annual Reports (TRC, January 2018 through January 2023) were also included in the evaluation. These parameters included boron, calcium, chloride, fluoride, pH, sulfate, total dissolved solids, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226/228 combined. Additionally, concentrations of magnesium, potassium, sodium, strontium, and total organic carbon (TOC), as well as field measured parameters including oxidation-reduction potential (ORP), dissolved oxygen (DO), specific conductivity (SC), temperature, and turbidity were analyzed/measured and utilized in this evaluation. The December 2022 field data are summarized in Table 1, and data for samples collected from the CCR unit water (2020 to 2022) and groundwater data collected from the uppermost aquifer monitoring wells (December 2022) are summarized in Table 2.

Analyte concentrations were compared to their historical values to verify consistency with past data (when possible). Samples collected from piezometers screened within the CCR unit (from PZ-1 to PZ-5) were compared to groundwater samples collected from the uppermost aquifer (MW-16-01 to MW-16-07). In addition, surface water samples for analysis were collected at Lake Erie (LE-01) and Plum Creek (P-01) to provide analytical data independent of both the CCR unit water or the uppermost aquifer groundwater (Figure 3). This data serves to augment the conceptual site model (CSM) by providing background information of other water types in the area, particularly the source of some of the stable isotopes.

3.1.1 General Chemistry

Data show that the December 2022 sampling results are consistent with historical data, and the results were within typical ranges of previously analyzed samples. The uppermost aquifer groundwater, FAB CCR unit water, and Lake Erie/Plum Creek sample geochemistries are broadly differentiated from each other in virtually every analysis. Figure 5 provides a Piper Diagram which plots the concentrations into groups or facies commonly recognized for comparison of major ions. Lake Erie and Plum Creek surface water samples plot in the magnesium-bicarbonate and mixed-no dominant facies while the uppermost aquifer groundwater is tightly packed at the top of the calcium-sulfate group. The CCR unit water varies in type but generally falls into the mixed-sodium/bicarbonate facies and is distinctively different from the uppermost aquifer groundwater. The uppermost aquifer results match those in the United Stated Geological Survey (USGS) report, Hydrology, Water Quality, and Effects of Drought in Monroe County (Nicholas, 1996).

Sulfate concentrations within the uppermost aquifer groundwater ranged from 1,300 milligrams per liter (mg/L) to 1,500 mg/L while the CCR unit water ranged from 14 mg/L to 560 mg/L (Figure 6). Chloride concentrations overlapped somewhat (uppermost aquifer groundwater 7.6 - 35 mg/L, CCR unit water 27 - 45 mg/L). Boron concentrations in the CCR unit water (2,800 – 13,000 micrograms per liter (µg/L)) were, on average 28 times higher than the uppermost

aquifer groundwater (150 – 430 ug/L) . Barium and molybdenum concentrations in the CCR unit water were an average of two orders of magnitude and three orders of magnitude, respectively, higher than the uppermost aquifer groundwater (Figure 7).

Calcium and magnesium were both considerably more concentrated in the uppermost aquifer groundwater than the CCR unit water (average 3 times and 100 times higher, respectively), but sodium and potassium were more concentrated in the CCR unit water than in the uppermost aquifer groundwater (average 18 times and 26 times, higher respectively). Groundwater in the uppermost aquifer was close to neutral (pH 6.93 - 7.11 standard units (SU)) while the CCR unit water was highly alkaline (pH 10.80 – 12.79 SU), and the uppermost aquifer ORP was low positive (3 – 46.3 millivolts [mV]) while the CCR unit water varied considerably (-45.1 – 129.3 mV). Table 4 below provides a summary of the data, which is discussed more fully in Section 3.1.2..

Table 4 - Summary of Water Chemistry Results

Parameter	Units	Aquifer Avg	CCR unit Avg	Lake Erie	Plum Creek
Na^{+}+ K^{+}+ Li^{+}	mg/L	12.4	225	15.3	60.8
Ca^{2+}+ Mg^{2+}+ Ba^{2+}	mg/L	520	112	48.3	111
B^{3+}	mg/L	0.27	6.7	<0.1	<0.1
HCO_3^{-}+ CO_3^{2-} + SO_4^{2-}+ Cl^{-}+ F^{-}	mg/L	1,615	634	159	471
pH	SU	7.0	12.0	8.4	7.8
Eh	mV	34.5	55.1	99.1	117

3.1.2 Ionic Speciation and Mineral Saturation

Using the measured data, the dominant dissolved species of each measured element was determined. The dominant cationic monovalent species were Na+ and K+ in all the groups. Due to the large pH difference between the uppermost aquifer groundwater and the CCR unit water, dominant species were shifted because of the large quantity of hydroxide ions in the CCR unit water (e.g., bicarbonate to carbonate and boric acid to borate). HCO_3^{-}, SO_4^{-}, Cl^{-}, and F^{-} were the dominant anions in all groups, except for the high pH CCR waters, where OH becomes important.

Geochemical parameters for the CCR unit water and the uppermost aquifer groundwater were calculated from the measured data using Geochemist's Workbench® (GW). The average of the chemical parameters for each water are presented below in Table 5.

Table 5 - Calculated Average Geochemical Parameters

Parameter	Units	CCR Unit Water Average	Uppermost Aquifer Average
f O2(g)	fugacity	2.527E-36	1.629E-57
pe	pe	0.9765	0.6122
Eh (O_2(aq)/H_2O)	Millivolts	0.05506	0.03453
Ionic strength	molal	0.02159	0.0403
Chlorinity	molal	0.0009718	0.0004265
Electrical conductivity	Microsiemens/centimeter	2044	2093
Hardness	Micrograms/Liter (as $CaCO_3$)	279	1,312
Hardness (carbonate)	Micrograms/Liter (as $CaCO_3$)	279	128.9
Hardness (non-carbonate)	Micrograms/Liter (as $CaCO_3$)	0	1,179
Carbonate alkalinity	Micrograms/Liter (as $CaCO_3$)	704.2	132.9
Charge imbalance	milliequivalents/Liter	-0.008	-0.005426
Charge imbalance error	percentage	-0.2842	-0.1291

Fugacity is a thermodynamic parameter that can be used to differentiate water masses based on their geochemical properties. Fugacity is a measure of the escaping tendency of a gas or volatile substance from a liquid or solid phase, and it is commonly used to describe the behavior of gases and other volatile substances in aqueous environments. A very low fugacity, as observed in each of these waters, means that a gas or volatile substance is not readily escaping from a liquid or solid phase. Both pe and Eh can be used to describe water masses based on their oxidative or reducing potential. The pe and Eh values correspond to relatively oxidizing environments, as it is greater than 0 and indicates that the activity of oxidants is greater than the activity of reductants. In other words, there is a relatively high concentration of electron acceptors (such as oxygen) compared to electron donors (such as ferrous iron) in the system. Ionic strength is a measure of the concentration of charged ions (e.g., Na^+, Cl^-, Mg^{2+}, etc.) in a solution. The values determined for both water masses indicates that that the concentration of charged ions in the water is sufficient to contribute to the overall ionic strength of the solution. Chlorinity is a measure of the concentration of chloride ions (Cl^-) in a solution and is often used as a proxy for salinity.

Electrical conductivity is a measure of the water's ability to conduct an electric current and reflects the concentration and mobility of charged ions in a solution. The values observed in both waters is relatively conductive, meaning they contain a relatively high concentration of dissolved ions such as dissolved salts.

Carbonate and non-carbonate hardness are two measures of water hardness that can be used to differentiate water masses based on their composition. Carbonate hardness, also known as temporary hardness, is caused by the presence of dissolved bicarbonate and carbonate ions in the water. These ions are derived from the dissolution of calcium and magnesium carbonates in the rock formations through which the water has passed. Non-carbonate hardness, also known as permanent hardness, is caused by the presence of dissolved calcium and magnesium ions in the water that are not associated with carbonate or bicarbonate ions. This type of hardness is typically caused by the dissolution of calcium and magnesium sulfates or chlorides in the water. The difference in carbonate hardness between the CCR unit water and the uppermost aquifer groundwater indicates that these two water masses have different sources or have been subjected to different geochemical processes. The differences of 150.1 µg/L (as $CaCO_3$) carbonate hardness and 1,179 µg/L (as $CaCO_3$) noncarbonate hardness between the CCR unit water and the uppermost aquifer groundwater are relatively large and demonstrates that they have significantly different sources or have undergone different geochemical processes, such as dissolution or precipitation of carbonate minerals.

By comparing the ratio of carbonate hardness to non-carbonate hardness, it is possible to differentiate water masses that have different sources and chemical compositions. For example, water masses that originate from carbonate-rich aquifers or limestone formations are likely to have higher carbonate hardness relative to non-carbonate hardness, while water masses that originate from sulfate-rich formations or are influenced by seawater intrusion are likely to have higher non-carbonate hardness relative to carbonate hardness. The very high ratio (undefined but taken as 279 for descriptive purposes here) in the context of the CCR unit water, high carbonate hardness can come from a variety of sources. Coal and coal combustion residuals typically contain significant amounts of calcium and magnesium carbonates. When these materials are exposed to water, they can dissolve, contributing to high levels of carbonate hardness in the water. Conversely, the ratio of carbonate and noncarbonate hardness in the uppermost aquifer groundwater is very low (0.1) indicating that, although there is limestone in the uppermost aquifer, the noncarbonate hardness is higher (likely related to the high sulfate content) than in the CCR unit water.

Mineral saturation indices of 102 mineral phases were also calculated using GW. Log(Q/K) mineral saturation data is typically used to determine the saturation state of minerals. Q represents the activity of a particular mineral species, while K represents the equilibrium constant for the mineral reaction in question. The logarithm of the ratio of Q to K is taken to calculate log(Q/K), which provides an indication of the saturation state of the mineral. If log(Q/K) is positive, it indicates that the mineral is oversaturated and may precipitate out of solution. If log(Q/K) is negative, it indicates that the mineral is undersaturated and may dissolve into solution. If log(Q/K) is zero, it indicates that the mineral is in a state of equilibrium. The saturation results are provided in Table 6.

In general, based on the calculations presented in Table 6, minerals with boron, barium, chloride, lithium, potassium, and sodium were slightly undersaturated and minerals with calcium and magnesium were near saturation in both waters. Oxides were oversaturated or near equilibrium in all samples. Carbonates were at equilibrium in the uppermost aquifer groundwater, but were oversaturated in the CCR unit water. Sulfate minerals were near saturation in the uppermost aquifer groundwater, but were undersaturated in the CCR water. This is also presented in Figure 6, which provides the concentration of calcium plus magnesium as a function of concentration of dissolved sulfate as shown in Figure 32 of the Monroe County USGS report (Nicholas, 1996). The uppermost aquifer groundwater results plot below the gypsum dissolution line just as the report notes for other groundwater samples in the area.

Based on these results, boron, barium, chloride, lithium, potassium, and sodium are likely slowly dissolving out of the natural uppermost aquifer materials into the uppermost aquifer groundwater. This is observed in the data. Boron, barium, lithium, and potassium concentrations are slightly higher in the downgradient wells than the cross gradient and upgradient monitoring wells. Chloride and sodium do not increase in concentration downgradient, but this is expected since they are unlikely to be available in the aquifer material to contribute to the groundwater. Although the carbonates are oversaturated in the CCR unit water, they may not be precipitating due to the pH. In alkaline conditions, carbonates can dissolve due to the formation of bicarbonate ions in solution. Note that calcium plus magnesium concentration as a function of the concentration of dissolved bicarbonate is provided in Figure 10 (discussed below) as shown in Figure 31 of the Monroe County USGS report (Nicholas, 1996). The uppermost aquifer groundwater plots above the carbonate dissolution line identically to the USGS report data, indicating that the carbonate chemistry in the uppermost aquifer groundwater is the same as those sampled across Monroe County.

3.2 Stable Isotopes

While concentration, speciation, and saturation data provide useful geochemical information to characterize water types, and can be particularly useful to determine if one body of water is in hydraulic connection with another, stable isotope analyses can provide unique “signatures” to differentiate and source waters. In order to build on the information presented above, several isotopic evaluations were also performed. For this study, lithium, boron strontium, hydrogen and oxygen isotopic data were used to determine the sources of various analytes and to build a CSM of the hydrogeologic and geochemical conditions. The stable isotope water data collected in December 2022 is summarized in Table 3.

Isotopes are commonly expressed with the delta notation (δ). The delta notation is a common way to express the relative abundance of isotopes in a sample, relative to a standard reference material. It is used to express the differences in the isotopic composition of a sample relative to the reference material, in parts per thousand (per mil or ‰). The delta notation is defined as:

$$\delta = \left(\frac{R_{Sample}}{R_{Standard}} - 1\right) 1{,}000$$

Where R is typically the rare isotope abundance divided by the abundant isotope abundance.

3.2.1 Lithium ($\delta^{7}Li$) and Boron ($\delta^{11}B$)

Lithium ($\delta^{7}Li$) and boron ($\delta^{11}B$) isotopes can be used to distinguish CCR water from background because the isotopic composition of lithium and boron in CCR is typically distinct from the composition in natural sources, such as rocks and sediments. The isotopic composition of lithium and boron in CCR is different from that of natural sources because coal has a unique isotopic signature due to its geological origins and the processes involved in its formation.

The isotopic composition of lithium can change during coal formation due to several factors, including the geological origins of the coal, the depositional environment, and the processes involved in coal formation (Owen, 2015). Lithium has two stable isotopes, lithium-6 and lithium-7, and their relative abundance can be expressed as the delta value ($\delta^{7}Li$) relative to a standard reference material (LSVEC NIST 8545 RM). The $\delta^{7}Li$ value can be used to track changes in the isotopic composition of lithium during coal formation (Teichert, 2022). The $\delta^{7}Li$ value of coal generally increases with increasing rank, or maturity, of the coal. This is because as coal is buried and subjected to increasing pressure and temperature, it undergoes a process called devolatilization, in which the volatile components of the coal, including lithium, are released. The released lithium preferentially enriches the remaining coal in the lighter isotope, lithium-6, leading to enrichment in the ^{7}Li in the coal. The exact extent to which the $\delta^{7}Li$ value changes during coal formation can also depend on other factors, such as the depositional environment and the source of the organic matter that forms the coal. For example, coal formed from organic matter derived from plants that preferentially take up lithium-6 during growth may have a higher $\delta^{7}Li$ value than coal formed from marine organisms that have a higher $\delta^{7}Li$ value (Schlesinger, 2021).

Boron is a trace element that can be found in coal in varying amounts. The isotopic composition of boron in coal can change during coal formation, but the specifics of this process depend on several factors, including the source of boron, the depositional environment, and the conditions during coalification (Williams, 2004). In general, boron is derived from several sources during coal formation, including volcanic activity, seawater, and groundwater. Boron has two stable isotopes, boron-10 and boron-11, and their relative abundance can be expressed as the delta value ($\delta^{11}B$) relative to a standard reference material (NIST SRM 951 RM). The isotopic composition of boron in these sources can vary, with different isotopic ratios of boron-10 to boron-11. During coal formation, boron can be incorporated into organic matter or minerals in the coal, and the isotopic composition of boron can be affected by processes such as adsorption, diffusion, and precipitation. For example, boron may be adsorbed onto clay minerals or organic matter in the coal, leading to a shift in the isotopic composition of boron towards the composition of the adsorbent (Williams, 2004). The depositional environment can also play a role in determining the isotopic composition of boron in coal. In marine environments, boron may be more enriched in boron-11 due to the fractionation of boron isotopes during seawater evaporation (Xiao, 2007). In freshwater environments, boron isotopes may be more fractionated due to differences in boron uptake by plants (Xiao, 2022).

For these reasons, the $\delta^{7}Li$ and $\delta^{11}B$ values in water can provide information about the source and transport of CCR and CCR affected water. The unique isotopic composition of lithium and boron in CCRs can be used as a tracer. Therefore, this additional uppermost aquifer

characterization utilized the measurement of $\delta^{7}Li$ and $\delta^{11}B$ values in the CCR unit water and the uppermost aquifer groundwater to determine if the unique CCR unit isotopic composition is observed in the uppermost aquifer groundwater. In order to make this effort even more robust, surface water samples were collected from the nearby Lake Erie and Plum Creek upgradient from the CCR unit (Figure 3) in order to determine their $\delta^{7}Li$ and $\delta^{11}B$ values.

The $\delta^{7}Li$ and $\delta^{11}B$ of the CCR unit water ranged from 7.78 to 24.25 per mil (‰) and -17.58 to -3.0 ‰, respectively, and the uppermost aquifer groundwater ranged from 11.09 to 14.23 ‰ and -0.36 to 5.38 ‰, respectively. As observed in Figure 8, the CCR unit water and the uppermost aquifer groundwater plot in two distinct groups that are statistically different ($p = 0.0052$ for a one-sided t-test at 95% confidence). The Lake Erie and Plum Creek surface water each plot approximately 5 ‰ heavier than the uppermost aquifer groundwater. The average $\delta^{11}B$ of the CCR unit water was 13.5 ‰ and 18.5 ‰ $\delta^{11}B$ lighter than the uppermost aquifer groundwater and Lake Erie/Plum Creek surface water samples, respectively. The CCR unit water lithium and boron isotopic compositions fall within ranges commonly observed of fractionated CCR material (Davidson, 1993; Spivak-Birndorf, 2006; Harkness 2015; Teichert, 2022). The $\delta^{7}Li$ and $\delta^{11}B$ vales of the uppermost aquifer groundwater samples and the surface water samples from Lake Erie and Plum Creek are compositionally distinct from the CCR values (Ruhl, 2014; Owen, 2015) and fall within ranges commonly observed in the natural environment (Gonfiantini, 2006). The statistical results are provided in Appendix B.

3.2.2 Strontium ($^{87}Sr/^{86}Sr$)

Similar to lithium and boron, the isotopic composition of strontium can be used to identify coal combustion residuals because coal and the minerals associated with it have a distinct strontium isotope signature that is different from other geologic materials (Brandt, 2018). During the coal combustion process, the strontium isotopic composition of the coal and any associated minerals is altered. CCR, including fly ash and bottom ash, can therefore be identified by analyzing their strontium isotopic composition and comparing it to the strontium isotopic composition of nearby liquids and solids that have not been affected by coal combustion (Hurst, 1981). The isotopic composition of strontium can be determined as a ratio of two of the stable isotopes, Sr-86, Sr-87, expressed as the ratio $^{87}Sr/^{86}Sr$ relative to a standard reference material (NIST SRM 987).

Strontium is a trace element that occurs naturally in coal-forming environments, and its isotopic composition can be affected by the source of the sedimentary materials, as well as by diagenetic processes. During coal formation, organic matter is buried and subjected to heat and pressure, which causes it to transform into coal. This process can lead to the release of fluids from the sedimentary rocks surrounding the coal seam, which can affect the isotopic composition of strontium in the coal (Spivak-Birndorf, 2012). In particular, the fluids may contain different concentrations of strontium isotopes compared to the original sedimentary rocks, which can lead to changes in the isotopic composition of strontium in the coal.

In addition, strontium can be incorporated into the organic matter itself during coal formation, which can also alter its isotopic composition. The extent to which strontium is incorporated into the organic matter is dependent on several factors, including the original concentration of strontium in the sedimentary materials and the conditions during coal formation. The isotopic

composition of strontium in coal can be influenced by both the source materials and the processes that occur during coal formation (Korte, 2003). This makes it a useful tool for determining if CCR impacted waters are in hydraulic connection with natural water.

Therefore, this additional uppermost aquifer characterization utilized the measurement of $^{87}Sr/^{86}Sr$ values in the CCR unit water and the uppermost aquifer groundwater to determine if the unique CCR unit isotopic composition is observed in the groundwater. Surface water samples were collected from the nearby Lake Erie and Plum Creek (Figure 3) in order to determine their $^{87}Sr/^{86}Sr$ values.

The $^{87}Sr/^{86}Sr$ ratios of the CCR unit water ranged from 0.709300 to 0.711936 while the uppermost aquifer groundwater ranged from 0.708454 to 0.708488. The average $^{87}Sr/^{86}Sr$ ratio of the CCR unit water was approximately 0.002 higher than the uppermost aquifer groundwater, which although seeming small, amounts to 68 times the internal range of all uppermost aquifer groundwater sample results. The Lake Erie and Plum creek strontium ratios were 0.708391 and 0.708543, respectively, which is essentially identical to the uppermost aquifer groundwater. As observed in Figure 9, the CCR unit water and the aquifer water plot in two distinct groups that are statistically different ($p = 0.00324$ for a one-sided t-test at 95% confidence). The statistical results are provided in Appendix B. The $^{87}Sr/^{86}Sr$ ratios of the CCR unit water are within published ranges of CCR leachate (Ruhl, 2014; Wang, 2020), and the uppermost aquifer groundwater samples and Lake Erie and Plum Creek sample composition fit with values observed in natural waters (Shahand, 2009).

3.2.3 Hydrogen (δ^2H) and Oxygen ($\delta^{18}O$)

Hydrogen and oxygen isotopes are commonly used in environmental studies to trace the sources and fate of water molecules. The use of hydrogen and oxygen isotopes in water can provide valuable insights into the impacts of CCRs on water quality. In the case of CCR impacts in water, hydrogen and oxygen isotopes can be used to determine the source of water in ponds and if those molecules have migrated to natural waters (Liu, 2006). The isotopic composition of water molecules within these CCR water bodies can be compared to the isotopic composition of nearby uncontaminated water bodies. The isotopic composition of hydrogen and oxygen in water molecules is expressed as δ^2H and $\delta^{18}O$, respectively, and is measured in ‰ relative to a standard (Vienna Standard Mean Ocean Water [VMOW]). The isotopic signature of CCRs can vary depending on the source of coal, combustion conditions, and post-combustion processing (Huang, 2017).

Additionally, precipitation can have a significant effect on hydrogen and oxygen isotopes in groundwater. This is because the isotopic composition of precipitation varies in different regions (global and local meteoric water lines) due to variations in temperature, altitude, and atmospheric circulation patterns (Jouzel, 1984). When precipitation falls to the ground, it can either infiltrate into the soil and recharge the groundwater, or it can run off and enter streams or ponds. In the case of infiltration, the isotopic composition of the precipitation is generally preserved as it moves through the soil and into the groundwater. This means that the δ^2H and $\delta^{18}O$ values of the groundwater will be similar to those of the precipitation that recharged it. The degree to which precipitation affects the isotopic composition of groundwater can vary

depending on factors such as the depth and age of the groundwater, the nature of the subsurface materials, and the rate of recharge. Therefore, δ^2H and $\delta^{18}O$ values in groundwater can be used to trace the origin and movement of water in aquifers and to Identify if CCR has impacted water.

For these reasons this additional uppermost aquifer characterization utilized the measurement of δ^2H and $\delta^{18}O$ values in the CCR unit water and the uppermost aquifer groundwater to determine if the unique CCR unit isotopic composition is observed in the uppermost aquifer groundwater. Surface water samples were collected from the nearby Lake Erie and Plum Creek where shown on Figure 3 in order to determine their δ^2H and $\delta^{18}O$ compositions.

The δ^2H and $\delta^{18}O$ compositions of the CCR unit water ranged from -51.38 to -48.02 ‰ and -7.51 to -6.95 ‰, respectively, and the uppermost aquifer groundwater compositions ranged from -55.98 to -50.26 ‰ and -9.00 to -7.62 ‰, respectively. The uppermost aquifer groundwater samples all plot above the global meteoric water line[1], and the CCR unit water samples straddle the line (Craig, 1961). The Lake Erie and Plum creek δ^2H and $\delta^{18}O$ compositions were -49.86/-6.88 ‰ and -53.18/-7.66 ‰, respectively. The CCR unit water δ^2H, on average was 2 ‰ lighter than the uppermost aquifer groundwater, and the $\delta^{18}O$ was 0.63 ‰ $\delta^{18}O$ lighter. As observed in Figure 10, the CCR unit water and the uppermost aquifer groundwater plot in two distinct groups that are statistically different (hydrogen p = 0.02759 and oxygen p = 0.004214 for one-sided t-tests at 95% confidence). The statistical results are provided in Appendix B.

3.3 Age Dating with Tritium Isotopes

The use of the isotope tritium to age date water is a well-established science and it has been successfully used to age date water sources for decades (Schlosser, 1988). Tritium (^3H) is a radioactive isotope of hydrogen, that decays at a constant rate to Helium-3 ($^3He^*$) with a half-life of about 12.3 years. It is a naturally occurring radioactive isotope, but also can be produced by human activities such as nuclear weapons testing. Tritium can be used to determine the age of groundwater because it can serve as a tracer of the time since the water was last in contact with the atmosphere (Telloli, 2022). Tritium is introduced into the atmosphere through nuclear weapons testing and naturally occurring cosmic radiation. It then becomes incorporated into precipitation and infiltrates into the ground, where it is taken up by plants or recharges groundwater. There are no subsurface reactions that generate tritium. Because tritium has a relatively short half-life, its concentration in precipitation, surface water and groundwater can be used to determine the age of the water (Dove, 2021).

When groundwater is recharged by precipitation that contains tritium, the concentration of tritium in the groundwater will be proportional to the age of the water since it was last in contact with the atmosphere. For example, if the concentration of tritium in the groundwater is high, it indicates that the water was recharged relatively recently, whereas if the concentration of tritium is low or undetectable, it indicates that the water is older. This information is important for understanding the hydrology of aquifers and for managing and protecting groundwater

[1] The global meteoric water line describes the global annual average relationship between hydrogen and oxygen isotope ratios (deuterium and oxygen 18) in natural meteoric waters. It is widely used to track water masses in environmental geochemistry and hydrogeology (Craig, 1961).

resources.

The groundwater age can be estimated using the concentration of tritium in the water and the known rate of decay of tritium. The basic equation for calculating tritium age is:

$$Age = ln\left(\frac{A/A_0}{\lambda}\right)$$

Where A is the measured tritium in the water sample in tritium units (TU), A_0 is the tritium concentration in precipitation, and λ is the decay constant which is 0.693 divided by the half-life of 12.3 years. The tritium age calculated from this equation represents the time since the water was last in contact with the atmosphere. However, it is important to note that the tritium age reflects the time since the water entered the subsurface but may not necessarily reflect the time since the water was first recharged into the aquifer. This is because the water may have spent some time in the unsaturated zone (i.e., the soil and rock above the water table) before entering the aquifer, and this time is not accounted for in the tritium age calculation.

This additional uppermost aquifer characterization utilized tritium to determine if water from the CCR unit was impacting the uppermost aquifer groundwater . This was accomplished by collecting water samples from within the CCR unit water, uppermost aquifer groundwater samples, and surface water samples from Lake Erie and Plum Creek upgradient of the unit. The tritium water data collected in December 2022 is summarized in Table 3. The Lake Erie and Plum Creek measured tritium values were 23.8 and 20.0 TU while the CCR unit water (collected from piezometers within the unit) ranged from 5.92 to 10.8 TU. The uppermost aquifer groundwater sample collected upgradient of the CCR Unit (MW-16-04) tritium value was 3.41 TU and all the other uppermost aquifer groundwater samples were below the detection limit of 0.1 TU.

Using the equation above, as a conservative approach the Lake Erie sample can be used to represent A_0. Using this estimate, the water in Plum Creek would be 2.7 years old and the CCR Unit water ranges from 13 to 17 years old (Figure 11). The MW-16-04 upgradient uppermost aquifer groundwater sample would therefore be approximately 20 years old from when it was recharged from further upgradient to the southwest and groundwater at all the other uppermost aquifer wells, including all the down hydraulic gradient wells were each last recharged at least 95 years ago (older than when the FAB entered service in ~1975 about 48 years ago; Figure 11). Therefore, if the CCR unit water were traveling vertically through the confining layer it would be observed in the tritium data at MW-16-01, MW-16-06 and MW-16-07, the downgradient uppermost aquifer groundwater is not in hydraulic communication with the CCR unit water and the uppermost aquifer has not been affected.

It is important to note that diffusion may affect tritium concentrations. Diffusion can affect tritium values in groundwater by altering the concentration gradient of tritium in the subsurface. Diffusion is the process by which molecules move from areas of high concentration to areas of low concentration due to random thermal motion. In the subsurface, diffusion can cause tritium to move from areas of higher concentration to areas of lower concentration, resulting in a

decrease in tritium concentration over time. In groundwater systems, tritium is introduced into the subsurface through infiltration of tritium-containing precipitation. The tritium concentration in the groundwater is initially highest near the recharge zone, and decreases as the water flows through the subsurface. As the tritium moves through the subsurface, it can be affected by diffusion, which can cause it to move from areas of higher concentration to areas of lower concentration.

The rate of diffusion of tritium in groundwater is therefore primarily dependent on the hydraulic conductivity of the subsurface materials and the concentration gradient of tritium. It is important to consider the effects of diffusion when interpreting tritium data in groundwater studies, as it can impact the accuracy of age estimates and the interpretation of the hydrogeological processes in the subsurface.

The control of diffusion in a groundwater system can be demonstrated by calculating the Peclet number. The Peclet number is a dimensionless number that describes the relative importance of advection and diffusion in a fluid system. In groundwater, the Peclet number can be calculated using the following equation:

$$Pe = \frac{(Lv)}{D}$$

where Pe is the Peclet number, L is the characteristic length scale of the system (e.g. the distance between the source and the monitoring well), v is the groundwater velocity, and D is the molecular diffusion coefficient. A Peclet number greater than 1 indicates that advection is dominant, while a Peclet number less than 1 indicates that diffusion is dominant. Given the distance (150 ft) to the monitoring wells and a seepage velocity of 73 ft/year, at standard temperature and pressure the Peclet number for tritium is greater than 10. Therefore, diffusion cannot be significantly influencing the measured tritium concentrations in the monitoring wells.

4.0 Statistical Analysis

TRC performed statistical evaluations of the data collected as part of this study to evaluate additional lines of evidence to support aquifer characterization. In order to compare the different water groups (CCR unit vs uppermost aquifer water) to each other in a holistic manner, principal component analysis (PCA) and linear discriminant analysis (LDA) were selected as appropriate data analysis tools. PCA and LDA are statistical techniques that are used for large data sets containing a high number of dimensions/features per observation allowing for visualization of multidimensional data. PCA is a well-established statistical method for evaluating data and has been around for over 100 years. Likewise, LDA analysis is a statistical method that has been used to evaluate large data sets since the 1930s. Geochemists and groundwater statisticians use these tools because they are effective to evaluate large data sets that are typical for sites that have numerous wells and numerous parameters tested, which result in potentially large data dimensionality.

The data used for this analysis consisted of the uppermost aquifer monitoring well network collected from August 2016 through December 2022, FAB water samples collected from April 2020 through December 2022, and CCR FAB piezometer CCR pore water samples collected from December 2020 through December 2022. Based on the recommendations from the Electric Power Research Institute (EPRI) New Techniques in Alternative Source Demonstrations (EPRI, October 2022) guidance and the minimum requirements of LDA, only the Appendix III analytes (boron, calcium, chloride, fluoride, sulfate, pH, and total dissolved solids (TDS)) were retained for analysis. Furthermore, it was found that TDS was not consistently reported in all the CCR unit water data and therefore TDS was removed from the analyte suite leaving boron, calcium, chloride, fluoride, sulfate, and pH. Non-detects were multiplied by 0.5 as this has been found to produce the most accurate results for PCA (Farnham et al, 2002).

4.1 Principal Component Analysis

The goal of the principal component analysis is to reduce the dimensionality of the data while preserving the variation contained within the dataset. To reduce the dimensionality, the data is linearly transformed from *n* dimensions to *n* linearly transformed dimensions or principal components (PCs). These resulting PCs are ordered in terms of which components contain the most variation of the original dataset from PC1 having the most variation to PC*n* having the least variation. The amount of variation each PC contains can be found in the eigenvalue of the PC, with higher eigenvalues corresponding to a higher percentage of the original dataset variation explained. These eigenvalues can be plotted to compare PCs to each other on what's known as a scree plot. Typically, the first two PCs are retained for further analysis, but any PCs with eigenvalues near or above 1 can be beneficial for analysis. The results of the PCA are commonly presented on a plot that contains both the loading scores of the PCs and the original data points projected using the PCs in what is known as a biplot. The loading scores indicate how much each analyte affects the corresponding PC and the projected points can be used to find clusters of similar data within the original dataset.

Figure 12, called a Scree plot, shows the eigenvalues for the six PCs created from the original data. PC1 and PC2 are near or above 1 and are therefore retained for further analysis. Figure 13 (Biplot) contains two layers of data, the blue arrows centered around the origin represent the

loading scores for the PCs and the colored points represented the projected data. As can be seen in the percentages provided for each axis, PC1 contains 62.18% of the variation of the original dataset, meaning that most of the variation of the data can be seen in the horizontal axis. PC2 contains 16.16% of the variation of the original dataset. Together PC1 and PC2 account for 78.34% of the variation of the original data, showing that the data has been reduced from six dimensions to two dimensions while only losing 21.66% of the variation. There is no established criteria for how much variation is required to be explained by the PCs but at least 70% is a common target which the first two PCs meet (Jolliffe and Cadima 2016). Because the data are standardized before PCA is performed, the loading scores are multiplied to the standardized score of each analyte. As can be seen on Figure 13 (Biplot) by the arrows, sulfate and calcium point almost directly left, meaning that higher than average concentrations of sulfate or calcium in a sample would project that sample further to the left on the biplot. Conversely, if a sample has lower than average concentrations of sulfate or calcium it would be projected more to the right. From the loading scores we can see that PC1 is strongly influenced by sulfate, calcium, pH, boron, and chloride and weakly influenced by fluoride. PC2 is strongly influenced by fluoride and chloride and weakly influenced by boron, calcium, and sulfate, PC2 is not significantly influenced by pH. The standardized data points are projected using the loading scores and are displayed as the color-coded points on the biplot. 95% confidence intervals were calculated to demonstrate the separation between the groups. As can be seen on Figure 13, the uppermost aquifer groundwater is significantly separated from the CCR FAB piezometer and basin water groups, showing that the analytical composition of the three groups are all distinctively different from each other.

4.2 Linear Discriminant Analysis

In addition to PCA, linear discriminant analysis (LDA) was performed to further provide evidence of separation between the groups. LDA is similar to PCA in that it performs dimensionality reduction on the data; however, instead of preserving the most variation of the dataset, it attempts to separate the provided groups based on the distance between them and then predicts the group membership of each data point. Because LDA is a classification method, we can directly measure the separability of the groups based on the performance of the model.

Figure 14 (LDA Origin) shows the eigenvalues, canonical variables which are analogous to principal components in PCA, the prediction matrix, and the error rate of the LDA. Because LDA is maximizing the distance between the groups, the canonical variables can explain all of the variation between groups in two variables instead of the six PCA produced. Similar to PCA, when we observe the standardized canonical coefficients table, we can see that CV1 is strongly influenced by boron, calcium, chloride, sulfate, and pH while only being weakly influenced by fluoride. CV2 is strongly influenced by calcium, sulfate, and pH and weakly influenced by boron, chloride, and fluoride. Because CV2 accounts for a low amount of variance, only CV1 was retained for further analysis.

The classification count table shows the predicted classification of each point in the columns while the actual classification are the rows. Where the predicted class column intersects the matching actual class row represents the correct classification, where the prediction class column doesn't match the actual class row represents a misclassification. The LDA model only

classified the points into the correct classes, demonstrating that the groups are separate from each other, this can also be seen in the Error Rate table that the total error rate is 0%.

Figure 15 (LDA Density of LDA Scores) visually represents where each point is projected to using CV1. Each subplot contains samples of only one class while the colors represent the model's prediction. As can be seen, the model perfectly separated the groups and there is significant distance between all of them showing that the units are distinct from each other. Additionally, an analysis of variance (ANOVA) was performed on the projected data that demonstrates a statistically significant difference between the three groups, the output of this analysis is presented in Figure 16 (LDA ANOVA). As can be seen in the figure, at the 95% confidence level the population means are significantly different between the uppermost aquifer groundwater and CCR FAB piezometer and basin water groups.

4.3 Time-Series and Background

To demonstrate analyte concentration consistency over time and natural variability between the uppermost aquifer wells, Figure 17 is included. The time series for the Appendix III analytes show that over the past six years of monitoring there have been no significant trends and the concentrations are relatively stable; further demonstrating that the uppermost aquifer groundwater is not being affected by CCR from the FAB. In addition to the relative stability of the analytes over time, it can be observed that there exists natural variability in concentrations between monitoring wells across the uppermost aquifer groundwater. Most notably in the graphs for chloride, fluoride, and boron, there is a clear distinction between the groundwater concentrations within the uppermost aquifer wells that remains relatively consistent over time.

5.0 Findings and Conclusions

The data analyzed in this assessment demonstrate that the CCR unit water is not in hydraulic communication with the uppermost aquifer and therefore has not impacted the uppermost aquifer groundwater. Each of the individual analyzes provides a line of evidence in support of this conclusion.

5.1 Geochemistry

The geochemistry data provides four distinct lines of evidence that the uppermost aquifer and the CCR unit are not in communication. The first is the distribution of mass or concentration of individual analytes in the three water groups (uppermost aquifer groundwater, Lake Erie/Plum Creek upgradient surface water, and CCR unit water). The second is the geochemical condition of each water group, the third is the geochemical similarity of the uppermost aquifer groundwater and the extensive USGS study of the groundwater across Monroe County, and the fourth are calculated environmental conditions calculated from the first two lines of evidence. From a simple perspective it can be seen that the concentrations of individual analytes in the CCR unit water are very different than within the uppermost aquifer groundwater. These differences are not minor. For example, the Ba^{2+} is up to two orders of magnitude more concentrated in CCR unit water than in the underlying groundwater. Na^{+} and K^{+} are 18 and 26 times more concentrated in the CCR unit water. Sulfate is almost nine times more concentrated in the uppermost aquifer groundwater than the CCR unit water.

Indeed, these differences are typically statistically significant to a 95% confidence interval. When two water masses become hydraulically connected, they tend to become more like each other chemically and physically. Geochemical conditions in the CCR unit water are very different from the uppermost aquifer groundwater. The pH of the CCR unit water pH is approximately 12 SU, but the uppermost aquifer groundwater is only approximately pH 7 SU. This means that there are approximately 100,000 times as many hydroxide ions in the CCR unit water than in the underlying uppermost aquifer groundwater. If the CCR unit water and uppermost aquifer groundwater were connected, the pH would be much closer.

The third line of evidence is that the uppermost aquifer groundwater is essentially identical to the groundwater in nearby wells on other properties. The USGS published an exhaustive description of the groundwater geochemical conditions across Monroe County (Nicholas, 1996). The groundwater data collected as part of this assessment, particularly carbonate and sulfate geochemistry, fit well with the USGS data.

The fourth line of calculated geochemical evidence adds weight to the first three. The water geochemistry demonstrates that the uppermost aquifer groundwater and the CCR unit water are not in communication, the existing concentrations of Appendix III and IV analytes in groundwater are geogenic and the uppermost aquifer has not been affected.

5.2 Stable Isotopes

Similar to the multiple lines of evidence described in the preceding section, the stable isotope results reinforce the conclusions described above. The stable isotope analyses provide five distinct lines of evidence ($\delta^{7}Li$, $\delta^{11}B$, $^{87}Sr/^{86}Sr$, $\delta^{2}H$, and $\delta^{18}O$) which unequivocally show that the

lithium, boron, strontium, hydrogen, and oxygen in the uppermost aquifer groundwater does not come from nor is it in communication with the CCR unit water. Not only do the compositions of each of these species fall within well-known natural ranges in the uppermost aquifer groundwater, but each is also statistically different than the corresponding composition in the CCR unit water at 95% confidence intervals. Therefore, the stable isotopes demonstrate that the uppermost aquifer groundwater and the CCR unit water are not in communication and the uppermost aquifer has not been affected.

5.3 Age Dating with Tritium Isotopes

Each of the previously discussed lines of evidence develops different aspects of the CSM. Similar to puzzle pieces, they elucidate different aspects of the hydrogeologic system. The tritium data, likewise reinforces the concept that the uppermost aquifer groundwater is not in communication with the CCR unit. Tritium has a half-life of 12.3 years, and the reporting limit is 0.1 TU. Therefore, groundwater ages up to 95 years in age from recharge should be observable. If a significant amount of CCR-impacted water were entering the groundwater, we should see an impact on the tritium concentration.

The thickness of the contiguous silty clay confining layer is 14 to 34 ft., and three of the monitoring wells (MW-16-01, MW-16-06 and MW-16-07) located immediately downgradient of the CCR unit did not have tritium detected above its laboratory detection limit (0.1 TU). Therefore, the groundwater within these down hydraulic gradient wells were each last recharged at least 95 years ago (older than when the FAB entered service in 1975 about 48 years ago). The lateral groundwater flow rate within the uppermost aquifer is approximately 73 ft/yr. Therefore, if the CCR unit water were traveling vertically through the confining layer it would be observed in the tritium data at MW-16-01, MW-16-06 and MW-16-07, the downgradient uppermost aquifer groundwater is not in hydraulic communication with the CCR unit water and the uppermost aquifer has not been affected.

5.4 Statistical Analysis

PCA was performed on MONPP FAB samples for App III analytes to compare the aquifer water to the CCR unit water in a holistic manner. The PCA was successful in separating the different units into clearly distinct groupings with no overlap at the 95% confidence level, demonstrating that the uppermost aquifer groundwater and the CCR unit water are not in communication and the uppermost aquifer has not been affected.

LDA was performed to further provide evidence that the units are not in communication with each other. LDA is similar to PCA in that they are both dimensionality reduction techniques, but LDA attempts to separate the groups while PCA simply attempts to preserve the variance within the dataset. The model created by the LDA had perfect accuracy and was able to completely separate the groups from each other with a large distance between them. To further provide evidence that the separation is strong, an ANOVA was performed on the data transformed by the LDA. ANOVA compares groups of data to each other to determine if it is statistically probably for the data to be from the same population or different populations. The results of the ANOVA showed that at the 95% confidence level, the units are distinct from each other

demonstrating that the uppermost aquifer groundwater, and the CCR unit water are not in communication and the uppermost aquifer has not been affected.

5.5 Final Assessment

In conclusion, the data collected in this assessment confirms that the uppermost aquifer is not in hydraulic communication with the CCR unit water. This conclusion is supported by each of the multiple lines of evidence presented in this report:

- The geochemical composition of the uppermost aquifer groundwater is independent of and statistically distinct from the CCR unit water;
- The geochemical composition of the uppermost aquifer groundwater is the same as regional groundwater, as published in USGS reports, demonstrating that the uppermost aquifer groundwater is unaffected by the CCR unit water;
- The source of lithium, boron, strontium, hydrogen, and oxygen in the uppermost aquifer groundwater is from upgradient groundwater and, as demonstrated by the stable isotope data is distinct from the CCR unit water; and
- Age dating with tritium validates that the uppermost aquifer groundwater is not hydraulically connected to the CCR unit.

These multiple lines of evidence come together in an additive fashion to further validate the CSM established in the ALD and previous studies, which holds that the contiguous glacially compacted natural clay-rich liner system serves as a natural confining hydraulic barrier isolating the underlying uppermost aquifer from the CCR unit and the uppermost aquifer groundwater is unaffected by the CCR unit water.

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Tables

Table 1
Summary of Field Data – December 2022
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program
Monroe, Michigan

Sample Location	Sample Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH (SU)	Specific Conductivity (umhos/cm)	Temperature (deg C)	Turbidity (NTU)
Monitoring Wells/Uppermost Aquifer							
MW-16-01	12/12/2022	1.66	38.8	7.1	1,873	11.1	2.65
MW-16-02	12/12/2022	1.47	27.5	7.1	1,899	10.6	2.07
MW-16-03	12/12/2022	1.27	36.2	7.0	1,982	11.3	3.72
MW-16-04	12/12/2022	1.30	46.3	7.0	1,870	10.8	1.38
MW-16-05	12/12/2022	1.27	39.9	7.0	1,873	11.6	1.36
MW-16-06	12/12/2022	1.38	19.9	7.1	1,882	11.0	20.9
MW-16-07	12/9/2022	1.18	33.1	6.9	1,761	11.4	3.47
Piezometers/Fly Ash Basin CCR Pore Water							
PZ-1	12/13/2022	1.57	67.9	12.2	1,225	10.6	2.10
PZ-2	12/12/2022	1.44	-45.1	12.8	5,657	12.4	1.72
PZ-3	12/13/2022	1.48	74.4	12.4	1,842	11.7	1.41
PZ-4	12/13/2022	1.66	129.3	11.6	732	9.7	3.96
PZ-5	12/13/2022	1.59	48.8	10.8	959	10.8	3.00
Fly Ash Basin Water							
SW-001	12/13/2022	12.52	67.6	9.2	776	4.3	5.91
Surface Water							
P-01	12/13/2022	8.83	116.7	7.8	669	3.7	3.96
LE-01	12/13/2022	13.06	99.1	8.4	207	2.8	9.46

Notes:
mg/L -Milligrams per Liter.
mV - Millivolts.
SU - Standard Units.
umhos/cm - Micromhos per centimeter.
°C - Degrees Celsius.
NTU - Nephelometric Turbidity Unit
P-01 Plum Creek, LE-01 = Lake Erie, SW-001 = Discharge Point from Fly Ash Basin

Table 2
Summary of Analytical Results – December 2020 to December 2022
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program
China Township, Michigan

Constituent:		Alkalinity, bicarbonate	Alkalinity, carbonate	Alkalinity, total	Barium	Boron	Calcium	Chloride	Fluoride	Lithium	Magnesium	Molybdenum	Potassium	Sodium	Sulfate	Total Organic Carbon
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
Sample Location	Sample Date															
Monitoring Wells/Uppermost Aquifer																
MW-16-01	12/12/2022	**210**	< 5	**210**	**0.0087**	**0.24**	**360**	**10**	**1.8**	**0.064**	**140**	< 0.005	**3.3**	**6.1**	**1,400**	**1.3**
MW-16-02	12/12/2022	**190**	< 5	**190**	**0.0062**	**0.37**	**390**	**13**	**1.6**	**0.095**	**150**	< 0.005	**3.9**	**10**	**1,500**	**1.1**
MW-16-03	12/12/2022	**190**	< 5	**190**	**0.0062**	**0.43**	**400**	**18**	**1.6**	**0.10**	**150**	< 0.005	**3.9**	**12**	**1,500**	**1.2**
MW-16-04	12/12/2022	**230**	< 5	**230**	**0.010**	**0.15**	**500**	**35**	**1.0**	**0.018**	**42**	< 0.005	**2.1**	**11**	**1,300**	**1.6**
MW-16-05	12/12/2022	**190**	< 5	**190**	**0.0054**	**0.19**	**380**	**11**	**1.5**	**0.039**	**130**	< 0.005	**2.9**	**7.6**	**1,400**	**1.3**
MW-16-06	12/12/2022	**190**	< 5	**190**	**0.011**	**0.31**	**360**	**11**	**1.6**	**0.078**	**140**	< 0.005	**3.8**	**10**	**1,400**	**1.2**
MW-16-07	12/9/2022	**190**	< 5	**190**	**0.0062**	**0.19**	**380**	**7.6**	**1.6**	**0.034**	**120**	< 0.005	**2.7**	**6.9**	**1,300**	**1.3**
Piezometers/Fly Ash Basin CCR Pore Water																
PZ-1	12/14/2020	< 10	**210**	**450**	**2.1**	**4.8**	**100**	**43**	**3.4**	**0.016**	**0.47**	**1.1**	**21**	**44**	**11**	**--**
	1/28/2021	< 10	**170**	**460**	**2.4**	**5.6**	**120**	**48**	**3.6**	**0.018**	**0.22**	**1.2**	**20**	**40**	**11**	--
	12/13/2022	< 5	**100**	**260**	**2.3**	**8.1**	**120**	**45**	**0.48**	**0.016**	< 1	**1.4**	**23**	**52**	**25**	**11**
PZ-2	12/14/2020	< 10	**240**	**1,300**	**0.50**	**4.3**	**43**	**31**	**24**	< 0.01	**0.46**	**2.5**	**180**	**480**	**51**	**--**
	1/28/2021	< 10	**260**	**1,400**	**0.66**	**4.5**	**40**	**32**	**23**	< 0.01	**0.84**	**1.9**	**220**	**530**	**67**	--
	12/12/2022	< 5	**610**	**1,400**	**0.60**	**5.9**	**29**	**33**	**3.7**	< 0.008	< 1	**2.1**	**230**	**560**	**84**	**96**
PZ-3	12/15/2020	< 10	**93**	**420**	**1.3**	**2.5**	**88**	**30**	**0.87**	**0.016**	**1.2**	**0.20**	**53**	**88**	**29**	**--**
	1/28/2021	< 10	**150**	**580**	**1.4**	**3.1**	**95**	**34**	**1.2**	**0.016**	**0.20**	**0.20**	**59**	**93**	**27**	--
	12/13/2022	< 5	**80**	**320**	**1.8**	**3.9**	**100**	**33**	**0.84**	**0.038**	< 1	**0.17**	**60**	**94**	**14**	0.73 J
PZ-4	12/14/2020	< 10	**120**	**510**	**0.099**	**2.6**	**54**	**33**	< 0.1	**0.36**	< 0.2	**2.2**	**66**	**52**	**130**	**--**
	1/28/2021	< 10	**89**	**170**	**0.12**	**2.5**	**57**	**37**	**0.83**	**0.39**	**0.26**	**2.0**	**63**	**49**	**140**	--
	12/13/2022	< 5	**44**	**78**	**0.11**	**2.8**	**61**	**34**	**0.36**	**0.44**	< 1	**1.5**	**62**	**40**	**140**	**2.0**
PZ-5	12/15/2020	< 10	**110**	**150**	**0.16**	**12**	**270**	**25**	**0.36**	< 0.01	**0.78**	**9.4**	**3.3**	**1.4**	**560**	**--**
	1/28/2021	< 10	**83**	**130**	**0.11**	**12**	**280**	**26**	< 0.4	< 0.01	**0.70**	**9.8**	**3.5**	**1.6**	**530**	--
	12/13/2022	< 5	**70**	**110**	**0.083**	**13**	**240**	**27**	**0.10**	< 0.008	< 1	**9.6**	**3.0**	< 1	**560**	**2.5**
Fly Ash Basin Water																
SW-001	12/13/2022	**90**	**30**	**120**	**0.32**	**1.3**	**190**	**22**	**0.76**	**0.14**	**20**	**0.53**	**5.7**	**38**	**510**	**2.2**
Surface Water																
P-01	12/13/2022	**180**	< 5	**180**	**0.034**	< 0.1	**90**	**110**	**0.61**	< 0.008	**21**	**0.019**	**2.8**	**58**	**180**	**3.4**
LE-01	12/13/2022	**110**	< 5	**110**	**0.026**	< 0.1	**37**	**21**	**0.13**	< 0.008	**11**	**0.0056**	**3.3**	**12**	**28**	**2.6**

Notes:

mg/L = milligram per liter, -- = not analyzed.

Bold font denotes concentrations detected above laboratory reporting limits.

J = estimated value. Concentration above the laboratory method detection limit but below the reporting limit.

P-01 Plum Creek, LE-01 = Lake Erie, SW-001 = Discharge Point from Fly Ash Basin

December 2020 and January 2021 groundwater samples collected by Geosyntec and included in the November 2021 Preliminary Alternative Liner Demonstration Report

Table 3
Summary of Stable Isotope and Tritium Results – December 2022
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program
China Township, Michigan

	Constituent:	$\delta^{87}Sr$	$\delta^{11}B$	$\delta^{7}Li$	$\delta^{2}H$	$\delta^{18}O$	Tritium
	Units:	‰	‰	‰	‰	‰	TU
Sample Location	Sample Date						
Monitoring Wells/Uppermost Aquifer							
MW-16-01 (Dup-01)	12/12/2022	**0.708475**	**-0.36**	**12.17**	**-51.64**	**-7.79**	< 0.1
MW-16-01	12/12/2022	**0.708454**	**-0.17**	**12.22**	**-50.79**	**-7.63**	< 0.1
MW-16-01, r.2	12/12/2022	**0.708488**	**-0.40**	**11.99**	--	--	--
MW-16-02	12/12/2022	**0.708472**	**3.75**	**14.23**	**-50.26**	**-7.62**	< 0.1
MW-16-03	12/12/2022	**0.708469**	**5.38**	**14.11**	**-50.30**	**-7.79**	< 0.1
MW-16-04	12/12/2022	**0.708478**	**5.14**	**13.22**	**-55.98**	**-9.00**	**3.34**(1)
MW-16-05	12/12/2022	**0.708472**	**2.47**	**11.63**	**-51.63**	**-7.95**	< 0.1
MW-16-06	12/12/2022	**0.708473**	**2.32**	**13.60**	**-50.81**	**-7.86**	< 0.1
MW-16-07	12/9/2012	**0.708479**	**2.31**	**11.09**	**-52.53**	**-8.20**	< 0.1
Piezometers/Fly Ash Basin CCR Pore Water							
PZ-1	12/13/2022	**0.710655**	**-11.37**	**16.48**	**-48.31**	**-7.38**	**6.32**
PZ-2	12/12/2022	**0.711936**	**-4.12**	**18.07***	**-51.38**	**-7.49**	**10.8**
PZ-3	12/13/2022	**0.711467**	**-3.00**	**24.25**	**-50.85**	**-7.43**	**10.2**
PZ-4	12/13/2022	**0.710690**	**-17.58**	**8.72**	**-49.92**	**-7.51**	**5.97**
PZ-4, r.2	12/13/2022	**0.710664**	**-16.94**	**7.78**	--	--	--
PZ-5	12/13/2022	**0.709300**	**-16.26**	**14.95**	**-48.02**	**-6.95**	**5.92**
Fly Ash Basin Water							
SW-001	12/13/2022	**0.711685**	**-9.60**	**3.41**	**-47.60**	**-6.69**	**21.3**
Surface Water							
P-01	12/13/2022	**0.708543**	**9.09**	**19.32**	**-53.18**	**-7.66**	**20.0**
LE-01	12/13/2022	**0.708391**	**6.98**	**18.18**	**-49.86**	**-6.88**	**23.8**

Notes:

‰ = per mil

TU = Tritium Units

-- = not analyzed.

Bold font denotes concentrations detected above laboratory reporting limits.

* - Lithium content is too low for precise measurement.

P-01 Plum Creek, LE-01 = Lake Erie, SW-001 = Discharge Point from Fly Ash Basin

1) - Value displayed is the average of laboratory original and re-run of the sample.

Table 6

Summary Calculated Mineral Saturation – December 2022

Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill – RCRA CCR Monitoring Program

China Township, Michigan

Sample Location	Unit	LE-01	MW-16-01	MW-16-02	MW-16-03	MW-16-04	MW-16-05	MW-16-06	MW-16-07	P-01	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	SW-001
Alstonite ($BaCa(CO_3)_2$)	log Q/K	-1.90	-4.16	-4.55	-4.78	-4.20	-4.86	-4.33	-10.98	-2.40	4.35	3.83	4.30	1.95	1.80	0.95
Anhydrite ($CaSO_4$)	log Q/K	-2.81	-0.66	-0.65	-0.63	-0.56	-0.66	-0.69	-3.53	-1.81	-2.79	-3.64	-3.23	-2.10	-1.07	-1.18
Antarcticite ($CaCl_2 \cdot 6H_2O$)	log Q/K	-13.70	-13.82	-13.60	-13.31	-12.61	-13.75	-13.77	-17.06	-12.03	-13.05	-14.64	-13.51	-13.36	-13.06	-13.23
Aragonite ($CaCO_3$)	log Q/K	0.24	-0.08	-0.16	-0.26	-0.03	-0.28	-0.19	-3.36	0.15	2.50	2.04	2.46	1.94	2.29	1.53
Arcanite (K_2SO_4)	log Q/K	-9.83	-8.70	-8.57	-8.59	-9.15	-8.86	-8.61	-14.73	-9.33	-8.46	-6.26	-7.93	-6.78	-9.00	-8.36
Artinite ($Mg_2(OH)_2CO_3 \cdot 3H_2O$)	log Q/K	-6.28	-7.62	-7.76	-8.05	-8.97	-8.16	-7.79	-14.45	-7.35	1.20	2.16	1.60	-0.09	-1.94	-3.60
Ba(OH)2^8H2O	log Q/K	-15.41	-18.48	-18.78	-18.97	-18.70	-19.03	-18.53	-22.16	-16.54	-5.61	-5.17	-5.26	-8.16	-10.08	-12.91
BaCl2(c)	log Q/K	-15.77	-17.35	-17.39	-17.10	-16.29	-17.57	-17.27	-20.87	-14.40	-13.25	-14.42	-13.67	-14.85	-15.39	-14.99
BaCl2^2H2O	log Q/K	-13.34	-15.07	-15.10	-14.83	-14.00	-15.30	-14.98	-18.60	-11.98	-10.96	-12.17	-11.40	-12.54	-13.11	-12.58
BaCl2^H2O	log Q/K	-14.14	-15.80	-15.84	-15.56	-14.74	-16.03	-15.72	-19.33	-12.78	-11.70	-12.89	-12.13	-13.29	-13.85	-13.37
BaF2(c)	log Q/K	-11.46	-10.31	-10.62	-10.63	-10.73	-10.72	-10.35	-13.55	-10.20	-8.52	-7.65	-8.18	-10.11	-11.58	-9.20
BaO(c)	log Q/K	-41.64	-43.61	-43.98	-44.08	-43.87	-44.09	-43.67	-47.25	-42.65	-30.81	-30.12	-30.31	-33.47	-35.25	-38.94
Barite ($BaSO_4$)	log Q/K	-0.17	0.18	-0.04	-0.06	0.14	-0.13	0.19	-2.97	0.49	1.40	0.90	0.97	0.84	0.99	1.70
Barytocalcite ($BaCa(CO_3)_2$)	log Q/K	-2.06	-4.32	-4.72	-4.94	-4.36	-5.02	-4.49	-11.14	-2.57	4.19	3.66	4.14	1.78	1.64	0.79
BaS(c)	log Q/K	-74.78	-54.93	-53.49	-53.84	-55.33	-54.35	-52.08	-55.83	-72.07	-98.59	-87.76	-101.60	-103.40	-85.08	-74.71
Bassanite ($CaSO_4 \cdot 1/2H_2O$)	log Q/K	-3.44	-1.30	-1.28	-1.27	-1.20	-1.29	-1.32	-4.16	-2.45	-3.42	-4.27	-3.86	-2.73	-1.70	-1.82
Bischofite ($MgCl_2 \cdot 6H_2O$)	log Q/K	-14.73	-14.58	-14.36	-14.08	-14.03	-14.55	-14.52	-17.90	-13.14	-15.46	-16.36	-15.86	-15.50	-15.77	-14.66
Bloedite ($Na_2Mg(SO_4)_2 \cdot 4H_2O$)	log Q/K	-15.27	-12.31	-11.88	-11.73	-12.42	-12.21	-11.93	-21.00	-12.33	-15.69	-13.61	-15.85	-14.13	-16.46	-12.04
Borax ($Na_2B_4O_5(OH)_4 \cdot 8H_2O$)	log Q/K	-26.64	-27.72	-26.58	-26.33	-28.20	-28.14	-26.88	-46.33	-26.28	-20.75	-20.66	-21.94	-21.66	-20.73	-20.22
Boric acid (H_3BO_3)	log Q/K	-6.16	-5.62	-5.42	-5.34	-5.81	-5.69	-5.49	-8.70	-6.11	-6.89	-7.64	-7.42	-6.78	-5.32	-5.19
Brucite ($Mg(OH)_2$)	log Q/K	-4.67	-5.81	-5.87	-6.04	-6.55	-6.09	-5.88	-9.28	-5.55	2.07	2.83	2.46	1.06	-0.56	-2.85
Burkeite ($Na_6(CO_3)(SO_4)_2$)	log Q/K	-29.99	-30.87	-29.72	-29.42	-29.56	-30.66	-29.77	-48.53	-25.03	-24.97	-17.87	-23.97	-24.45	-33.49	-24.32
Ca(OH)2(c)	log Q/K	-10.75	-11.94	-12.01	-12.16	-12.03	-12.17	-12.02	-15.33	-11.53	-2.43	-2.31	-2.07	-3.73	-4.75	-8.49
Ca2Cl2(OH)2^H2O	log Q/K	-23.60	-25.09	-24.94	-24.81	-23.96	-25.26	-25.12	-31.73	-22.73	-14.80	-16.31	-14.93	-16.39	-17.14	-20.90
Ca4Cl2(OH)6^13H2O	log Q/K	-37.72	-43.22	-43.11	-43.43	-42.21	-43.95	-43.40	-56.70	-38.59	-13.81	-15.43	-13.45	-17.82	-20.84	-30.79
CaCl2^2H2O	log Q/K	-18.39	-18.23	-18.03	-17.72	-17.03	-18.14	-18.18	-21.47	-16.69	-17.48	-19.01	-17.91	-17.82	-17.49	-17.86
CaCl2^4H2O	log Q/K	-14.70	-14.73	-14.52	-14.22	-13.53	-14.65	-14.68	-17.97	-13.02	-13.97	-15.54	-14.42	-14.28	-13.98	-14.21
CaCl2^H2O	log Q/K	-18.63	-18.43	-18.23	-17.92	-17.23	-18.34	-18.39	-21.67	-16.93	-17.68	-19.21	-18.11	-18.02	-17.69	-18.10
Calcite ($CaCO_3$)	log Q/K	0.41	0.08	0.01	-0.10	0.13	-0.12	-0.02	-3.19	0.32	2.67	2.21	2.63	2.10	2.46	1.70
Carnallite ($KMgCl_3 \cdot 6(H_2O)$)	log Q/K	-21.67	-22.08	-21.70	-21.29	-21.21	-22.10	-21.95	-28.61	-19.49	-21.39	-21.58	-21.54	-21.10	-22.85	-21.43
CaSO4^1/2H2O(beta)	log Q/K	-3.64	-1.48	-1.47	-1.45	-1.38	-1.48	-1.50	-4.34	-2.64	-3.61	-4.45	-4.04	-2.92	-1.89	-2.01
Celestite ($SrSO_4$)	log Q/K	-2.87	-0.24	-0.21	-0.22	-0.08	-0.23	-0.26	-0.04	-1.62	-1.60	-2.23	-1.87	-1.68	-0.47	-0.91
Chloromagnesite ($MgCl_2$)	log Q/K	-34.18	-33.26	-33.09	-32.74	-32.75	-33.19	-33.22	-36.56	-32.50	-34.19	-34.93	-34.49	-34.31	-34.48	-33.96
Colemanite ($Ca_2B_6O_{11} \cdot 5H_2O$)	log Q/K	-33.41	-33.18	-32.10	-31.98	-34.47	-34.12	-32.57	-58.45	-34.79	-21.74	-26.17	-24.30	-23.62	-17.01	-23.21
Dolomite ($CaMg(CO_3)_2$)	log Q/K	1.29	0.83	0.68	0.46	0.27	0.39	0.63	-5.79	1.01	4.36	4.11	4.34	3.50	3.64	3.44
Dolomite-dis ($CaMg(CO_3)_2$)	log Q/K	-0.43	-0.82	-0.97	-1.19	-1.38	-1.26	-1.02	-7.44	-0.70	2.71	2.47	2.69	1.84	1.99	1.74
Dolomite-ord ($CaMg(CO_3)_2$)	log Q/K	1.29	0.83	0.68	0.46	0.27	0.39	0.63	-5.79	1.01	4.36	4.11	4.34	3.50	3.64	3.44
Epsomite ($MgSO_4 \cdot 7H_2O$)	log Q/K	-5.25	-3.06	-3.04	-3.05	-3.62	-3.12	-3.08	-6.01	-4.36	-6.83	-7.04	-7.23	-5.84	-5.41	-4.07
Fe(OH)3(ppd)	log Q/K	-1.25	-1.45	-1.08	-0.61	-1.56	-0.61	-0.36	-0.77	-1.29	-3.02	-3.52	-3.39	-2.31	-2.29	-0.97
$Fe_2(SO_4)_3$(c)	log Q/K	-56.08	-44.22	-43.34	-41.72	-43.95	-41.69	-41.87	-41.20	-50.58	-82.40	-85.82	-85.21	-75.25	-68.75	-57.02
FeF3(c)	log Q/K	-16.86	-10.54	-10.19	-9.42	-10.95	-9.47	-9.44	-9.19	-13.30	-28.73	-28.56	-29.09	-26.61	-25.90	-16.89
Ferrite-2-Ca ($Ca_2Fe_2O_5$)	log Q/K	-26.64	-29.12	-28.54	-27.88	-29.52	-27.87	-27.11	-34.53	-28.25	-13.25	-13.94	-13.23	-14.46	-16.44	-21.49
Ferrite-Ca ($Ca(FeO_2)_2$)	log Q/K	-2.09	-3.82	-3.15	-2.37	-4.12	-2.37	-1.72	-5.86	-2.97	2.56	1.66	2.17	2.70	1.69	0.71
Ferrite-Mg ($MgFe_2O_4$)	log Q/K	-2.16	-3.67	-3.00	-2.22	-4.63	-2.26	-1.57	-5.78	-3.13	1.07	0.84	0.73	1.48	-0.11	0.23
Fluorite (CaF_2)	log Q/K	-2.31	0.29	0.23	0.23	0.01	0.17	0.21	-2.68	-0.75	-1.25	-0.81	-0.97	-1.56	-2.19	-0.36
Gaylussite ($Na_2Ca(CO_3)_2 \cdot 5H_2O$)	log Q/K	-8.20	-11.06	-10.77	-10.91	-10.58	-11.35	-10.84	-20.51	-7.43	-3.33	-1.29	-2.85	-4.50	-7.68	-5.35
Goethite (α-FeO(OH))	log Q/K	3.40	3.09	3.47	3.93	2.99	3.93	4.19	3.77	3.35	1.53	1.02	1.15	2.25	2.26	3.66
Graphite (C)	log Q/K	-33.00	-22.21	-21.39	-21.50	-22.26	-21.72	-20.81	-20.96	-31.27	-51.58	-46.46	-53.27	-52.99	-42.50	-34.85
Gypsum ($CaSO_4 \cdot 2H_2O$)	log Q/K	-2.40	-0.35	-0.32	-0.32	-0.25	-0.35	-0.37	-3.21	-1.42	-2.47	-3.33	-2.92	-1.77	-0.75	-0.80
Halite (NaCl)	log Q/K	-8.09	-8.83	-8.53	-8.32	-8.06	-8.72	-8.60	-11.90	-6.73	-7.20	-6.42	-7.09	-7.41	-9.16	-7.64
Hematite (Fe_2O_3)	log Q/K	7.69	7.10	7.85	8.78	6.90	8.78	9.29	8.46	7.58	3.98	2.95	3.22	5.42	5.43	8.22
Hexahydrite ($MgSO_4 \cdot 6H_2O$)	log Q/K	-5.63	-3.40	-3.38	-3.38	-3.96	-3.45	-3.42	-6.35	-4.74	-7.17	-7.37	-7.56	-6.19	-5.75	-4.45
Huntite ($Mg_3Ca(CO_3)_4$)	log Q/K	-4.19	-4.66	-4.97	-5.40	-6.46	-5.58	-5.06	-17.97	-4.80	0.74	0.96	0.78	-0.73	-1.01	-0.25
Hydroboracite ($CaMgB_6O_8(OH)_6 \cdot 3H_2$	log Q/K	-28.50	-29.75	-28.57	-28.60	-31.65	-30.84	-29.12	-55.16	-30.16	-19.86	-23.97	-22.58	-21.29	-15.46	-19.03
Hydromagnesite ($Mg_5(CO_3)_4(OH)_2 \cdot 4H$	log Q/K	-13.65	-15.06	-15.44	-16.04	-18.26	-16.31	-15.53	-31.93	-15.23	-3.43	-1.78	-2.94	-5.63	-8.11	-8.30
Hydrophilite ($CaCl_2$)	log Q/K	-22.60	-22.26	-22.06	-21.74	-21.06	-22.16	-22.21	-25.48	-20.88	-21.51	-23.01	-21.92	-21.87	-21.51	-22.04
Jarosite-K ($KFe_3(SO_4)_2(OH)_6$)	log Q/K	-16.23	-10.50	-9.23	-7.52	-10.78	-7.64	-7.09	-10.66	-13.35	-32.58	-34.26	-34.50	-26.71	-24.59	-15.46
Jarosite-Na ($NaFe_3(SO_4)_2(OH)_6$)	log Q/K	-16.75	-12.36	-10.89	-9.18	-12.16	-9.42	-8.79	-12.42	-13.23	-34.31	-36.18	-36.53	-28.86	-27.16	-15.92
K2CO3^3/2H2O	log Q/K	-15.46	-16.92	-16.87	-17.02	-17.42	-17.29	-16.91	-23.36	-16.05	-11.96	-9.40	-11.05	-11.53	-14.44	-14.34
K8H4(CO3)6^3H2O	log Q/K	-56.35	-60.14	-59.97	-60.45	-61.85	-61.53	-60.13	-85.66	-57.33	-54.17	-45.00	-51.29	-51.02	-59.85	-53.78
Kainite ($KMg(SO_4)Cl \cdot 3H_2O$)	log Q/K	-14.55	-12.71	-12.54	-12.40	-12.95	-12.80	-12.65	-18.86	-13.04	-14.92	-14.36	-15.04	-13.62	-14.64	-13.16
Kalicinite ($KHCO_3$)	log Q/K	-6.41	-6.62	-6.60	-6.65	-6.80	-6.78	-6.63	-9.78	-6.36	-7.61	-6.60	-7.34	-7.04	-7.79	-6.32
Kieserite ($MgSO_4 \cdot H_2O$)	log Q/K	-7.75	-5.26	-5.26	-5.24	-5.83	-5.30	-5.29	-8.20	-6.82	-9.04	-9.19	-9.41	-8.09	-7.62	-6.51
$KMgCl_3$	log Q/K	-40.60	-40.26	-39.93	-39.45	-39.41	-40.24	-40.14	-46.76	-38.33	-39.62	-39.64	-39.67	-39.40	-41.05	-40.22
$KMgCl_3$^2H2O	log Q/K	-32.51	-32.48	-32.13	-31.67	-31.62	-32.47	-32.35	-38.99	-30.28	-31.82	-31.90	-31.91	-31.57	-33.26	-32.19
KNaCO3^6H2O	log Q/K	-10.18	-12.44	-12.22	-12.33	-12.46	-12.69	-12.27	-18.76	-10.08	-7.37	-4.90	-6.69	-7.43	-10.69	-8.89
Leonhardtite ($MgSO_4 \cdot 4H_2O$)	log Q/K	-6.65	-4.30	-4.28	-4.28	-4.86	-4.34	-4.32	-7.24	-5.74	-8.07	-8.25	-8.45	-7.10	-6.65	-5.44
Lime (CaO)	log Q/K	-21.78	-22.61	-22.71	-22.83	-22.71	-22.82	-22.70	-25.99	-22.52	-13.12	-12.93	-12.72	-14.46	-15.44	-19.45
Magnesite ($MgCO_3$)	log Q/K	-0.90	-0.97	-1.05	-1.15	-1.58	-1.21	-1.06	-4.32	-1.07	-0.03	0.19	0.00	-0.33	-0.54	-0.01
Mercallite ($KHSO_4$)	log Q/K	-14.18	-11.81	-11.71	-11.63	-11.95	-11.77	-11.74	-14.56	-13.03	-17.52	-16.88	-17.64	-15.70	-15.77	-13.74
$Mg_2Cl(OH)_3$^4H2O	log Q/K	-12.09	-14.27	-14.23	-14.39	-15.10	-14.72	-14.35	-21.16	-12.68	-2.86	-2.30	-2.55	-4.34	-6.98	-9.42
$MgCl_2$^2H2O	log Q/K	-24.14	-23.58	-23.39	-23.07	-23.05	-23.53	-23.53	-26.89	-22.50	-24.49	-25.31	-24.83	-24.57	-24.79	-23.99
$MgCl_2$^4H2O	log Q/K	-18.04	-17.74	-17.54	-17.24	-17.20	-17.70	-17.69	-21.06	-16.43	-18.63	-19.51	-19.01	-18.68	-18.94	-17.94
$MgCl_2$^H2O	log Q/K	-27.87	-27.17	-26.99	-26.65	-26.64	-27.11	-27.12	-30.47	-26.22	-28.08	-28.87	-28.41	-28.18	-28.38	-27.70
MgF_2(c)	log Q/K	-5.91	-2.96	-3.03	-3.02	-3.90	-3.11	-3.04	-6.00	-4.41	-6.15	-5.01	-5.79	-6.20	-7.39	-4.34
MgOHCl	log Q/K	-16.02	-16.22	-16.16	-16.08	-16.33	-16.33	-16.24	-19.61	-15.64	-12.74	-12.75	-12.70	-13.29	-14.20	-15.02
MgSO4(c)	log Q/K	-13.41	-10.73	-10.73	-10.70	-11.30	-10.75	-10.75	-13.66	-12.47	-14.52	-14.62	-14.85	-13.59	-13.09	-12.14
MHSH(Mg1.5)	log Q/K	-11.36	-9.36	-9.39	-9.45	-10.31	-9.54	-9.42	-14.04	-10.87	-9.21	-8.96	-9.36	-8.77	-9.10	-9.20
Mirabilite ($Na_2SO_4 \cdot 10H_2O$)	log Q/K	-8.22	-7.87	-7.45	-7.33	-7.41	-7.75	-7.48	-13.63	-6.22	-7.47	-5.27	-7.29	-6.85	-9.66	-6.25
Misenite ($K_8H_8(SO_4)_7$)	log Q/K	-93.52	-78.48	-77.72	-77.25	-79.74	-78.38	-77.94	-101.00	-86.11	-112.50	-106.50	-112.70	-99.84	-102.50	-89.45
Molysite ($FeCl_3$)	log Q/K	-45.77	-42.88	-42.17	-40.91	-41.10	-41.50	-41.61	-41.93	-41.97	-57.65	-60.40	-59.06	-55.61	-53.42	-47.89
Monohydrocalcite ($CaCO_3 \cdot H_2O$)	log Q/K	-0.55	-0.89	-0.96	-1.07	-0.84	-1.08	-0.99	-4.16	-0.65	1.70	1.24	1.66	1.14	1.49	0.73
$Na_3H(SO_4)_2$	log Q/K	-23.93	-21.27	-20.62	-20.31	-20.51	-20.94	-20.66	-29.63	-20.00	-26.51	-23.60	-26.58	-24.64	-27.77	-21.21
$NaFeO_2$(c)	log Q/K	-12.33	-13.69	-13.17	-12.69	-13.67	-12.87	-12.43	-16.14	-12.23	-9.25	-8.09	-9.09	-9.27	-11.64	-10.68
Nesquehonite ($MgCO_3 \cdot 3H_2O$)	log Q/K	-4.14	-4.07	-4.15	-4.25	-4.69	-4.30	-4.17	-7.41	-4.30	-3.14	-2.89	-3.10	-3.45	-3.65	-3.23
Pentahydrite ($MgSO_4 \cdot 5(H_2O)$)	log Q/K	-5.95	-3.72	-3.70	-3.71	-4.28	-3.77	-3.74	-6.67	-5.06	-7.49	-7.69	-7.88	-6.51	-6.07	-4.76
Pirssonite ($Na_2Ca(CO_3)_2 \cdot 2(H_2O)$)	log Q/K	-9.22	-11.75	-11.48	-11.59	-11.29	-12.03	-11.53	-21.19	-8.41	-4.04	-1.93	-3.52	-5.24	-8.38	-6.31
Portlandite ($Ca(OH)_2$)	log Q/K	-10.75	-11.94	-12.01	-12.16	-12.03	-12.17	-12.02	-15.33	-11.53	-2.43	-2.31	-2.07	-3.73	-4.75	-8.49
$Sr(OH)_2$(c)	log Q/K	-17.47	-17.97	-18.05	-18.20	-18.00	-18.18	-18.06	-18.30	-17.98	-7.71	-7.32	-7.16	-9.80	-10.62	-14.83
SrCl2(c)	log Q/K	-19.98	-19.21	-19.01	-18.71	-17.96	-19.11	-19.17	-19.39	-18.01	-17.70	-18.99	-17.95	-18.83	-18.30	-19.09
SrCl2^2H2O	log Q/K	-14.82	-14.26	-14.04	-13.76	-13.00	-14.17	-14.21	-14.44	-12.87	-12.74	-14.07	-13.01	-13.84	-13.34	-13.97
SrCl2^6H2O	log Q/K	-12.45	-12.07	-11.85	-11.58	-10.81	-12.00	-12.03	-12.26	-10.52	-10.54	-11.91	-10.84	-11.62	-11.15	-11.63
SrCl2^H2O	log Q/K	-16.51	-15.87	-15.66	-15.36	-14.61	-15.77	-15.82	-16.05	-14.55	-14.35	-15.66	-14.61	-15.46	-14.95	-15.64
SrF_2(c)	log Q/K	-7.38	-4.13	-4.18	-4.19	-4.35	-4.22	-4.21	-4.03	-5.54	-4.91	-4.21	-4.44	-6.00	-6.44	-5.05
SrO(c)	log Q/K	-33.31	-33.31	-33.42	-33.53	-33.37	-33.50	-33.41	-33.62	-33.76	-23.08	-22.59	-22.47	-25.23	-25.98	-30.58
SrS(c)	log Q/K	-74.86	-52.80	-51.10	-51.45	-53.00	-51.89	-49.99	-50.35	-71.56	-99.03	-88.35	-101.90	-103.30	-83.98	-74.71
Strontianite ($SrCO_3$)	log Q/K	1.05	1.19	1.12	0.99	1.30	0.99	1.08	0.97	1.21	4.54	4.30	4.66	3.20	3.73	2.67
Sulfur-Rhmb (S)	log Q/K	-44.33	-26.52	-25.17	-25.27	-26.59	-25.61	-24.32	-24.30	-41.03	-71.80	-64.31	-74.58	-72.97	-57.32	-46.35
Sylvite (KCl)	log Q/K	-8.06	-8.59	-8.43	-8.29	-8.26	-8.64	-8.51	-11.80	-7.46	-7.02	-6.29	-6.77	-6.69	-8.16	-7.89
Tachyhydrite ($CaMg_2Cl_6 \cdot 12H_2O$)	log Q/K	-48.24	-47.73	-47.11	-46.21	-45.45	-47.58	-47.57	-57.61	-43.34	-48.74	-52.08	-49.96	-49.16	-49.37	-47.55
Thenardite (Na_2SO_4)	log Q/K	-10.08	-9.37	-8.97	-8.81	-8.92	-9.22	-8.98	-15.11	-8.04	-8.98	-6.71	-8.76	-8.41	-11.17	-8.04
Witherite ($BaCO_3$)	log Q/K	2.01	-0.09	-0.40	-0.54	-0.17	-0.60	-0.15	-3.65	1.58	5.85	5.74	5.82	4.02	3.50	3.55

Notes:

Positive values are oversaturated and may precipitate out of solution

Negative values are undersaturated and may dissolve into solution

Figures

BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
www.trccompanies.com
TRC - GIS

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
SITE LOCATION MAP

DRAWN BY:	A. FOJTIK
CHECKED BY:	H. SCHNAIDT
APPROVED BY:	H. SCHNAIDT
DATE:	JANUARY 2023
PROJ. NO.:	461816.0001
FILE:	461816-0001-004SLM.mxd

FIGURE 1

E:\DTE\CCR_Sites\2017_265996\461816-0001-004SLM.mxd -- Saved By: MOPEL on 1/4/2023, 10:31:13 AM

LEGEND

- MONITORING WELLS
- PIEZOMETERS
- SURFACE WATER SAMPLE POINT
- APPROXIMATE BOUNDARY OF FLY ASH BASIN
- APPROXIMATE BOUNDARY OF VERTICAL EXTENSION LANDFILL

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2021.
2. MONITORING WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN MARCH AND MAY 2016.
3. PIEZOMETER LOCATION DATA COLLECTED WITH PORTABLE GPS UNIT BY GEOSYNTECH IN DECEMBER 2020.

N

0 600 1,200 Feet

1 " = 600 '
1:7,200

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
MONITORING NETWORK AND SITE PLAN

DRAWN BY:	A. ADAIR	PROJ NO.:	522171.0002
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		**FIGURE 2**
DATE:	JANUARY 2023		

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
www.trccompanies.com

FILE NO.: 461816_005_MNSP.mxd

TRC - GIS
Plot Date: 1/20/2023, 22:20:42 PM by AADAIR -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\DTE_Energy\MonroeMI_PP\461816_0001\461816_005_MNSP.mxd
Coordinate System: NAD 1983 UTM Zone 17N (Meter)
Map Rotation: 0

LEGEND

SURFACE WATER SAMPLE

APPROXIMATE FLY ASH BASIN BOUNDARY

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2021.
2. SURFACE WATER SAMPLE LOCATION IS APPROXIMATE.

0 2,000 4,000 Feet

1 " = 2,000 '

1:24,000

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
OFFSITE SURFACE WATER SAMPLE LOCATIONS

DRAWN BY:	A. ADAIR	PROJ NO.:	522171.0002
CHECKED BY:	J. KRENZ		
APPROVED BY:	V. BUENING		**FIGURE 3**
DATE:	JANUARY 2023		

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
www.trccompanies.com

FILE NO.: 522171_009_OFF.mxd

TRC - GIS
Coordinate System: NAD 1983 UTM Zone 17N (Meter)
Map Rotation: 0
Plot Date: 4/7/2023, 13:29:06 PM by AADAIR – LAYOUT: ANSI B (11"x17")
Path: S:\11-PROJECTS\DTE_EnergyMonroeMI_PP\522171_0002\522171_009_OFF.mxd

LEGEND

- MONITORING WELL
- APPROXIMATE BOUNDARY OF FLY ASH BASIN
- APPROXIMATE BOUNDARY OF VERTICAL EXTENSION LANDFILL
- POTENTIOMETRIC SURFACE CONTOUR
- INFERRED POTENTIOMETRIC SURFACE CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION
- (582.84) STATIC WATER ELEVATION IN FEET (NAVD, 1988)

NOTES

1. BASE MAP IMAGERY FROM GOOGLE EARTH PRO, 2021.
2. WELL LOCATIONS SURVEYED BY BMJ ENGINEERS AND SURVEYORS INC. IN MARCH AND MAY 2016.
3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET RELATIVE TO NORTH AMERICAN VERTICAL DATUM OF 1988.

N

0 600 1,200 Feet

1 " = 600 '

1:7,200

PROJECT:
DTE ELECTRIC COMPANY
MONROE POWER PLANT
FLY ASH BASIN AND VERTICAL EXTENSION LANDFILL
7955 EAST DUNBAR ROAD
MONROE, MICHIGAN

TITLE:
POTENTIOMETRIC SURFACE MAP
OCTOBER 2022

DRAWN BY:	A. ADAIR	PROJ NO.:	461816.0001
CHECKED BY:	H. SCHNAIDT		
APPROVED BY:	V. BUENING		FIGURE 4
DATE:	JANUARY 2023		

TRC
1540 Eisenhower Place
Ann Arbor, MI 48108-3284
Phone: 734.971.7080
www.trccompanies.com

FILE NO.: 461816_007_OCTGW.mxd

Plot Date: 1/5/2023, 12:08:06 PM by RSUEMNICHT -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\DTE_Energy\Monroe\MI_PP\461816_0001\461816_007_OCTGW.mxd
Coordinate System: NAD 1983 UTM Zone 17N (Meter)
Map Rotation: 0

TRC - GIS

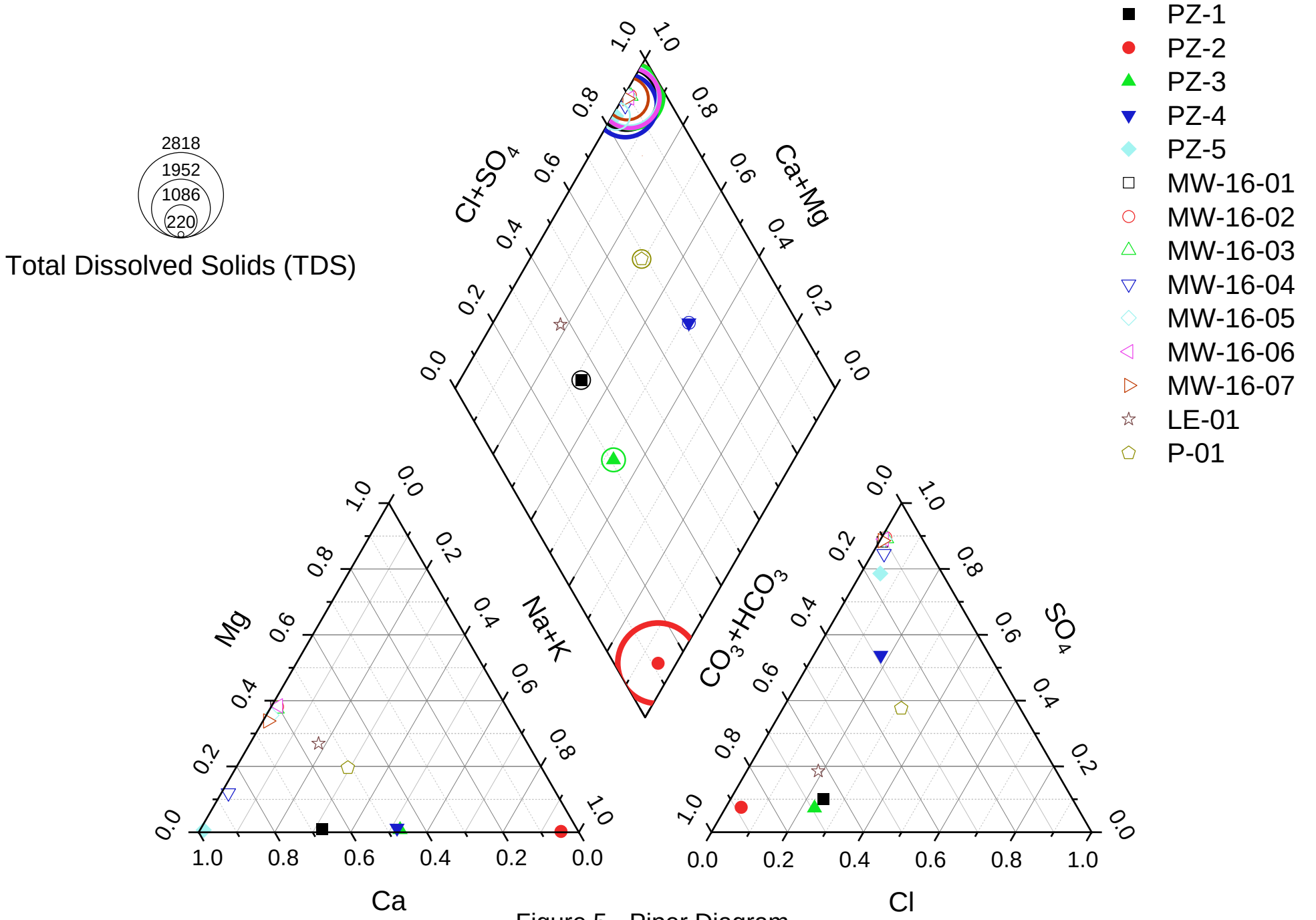
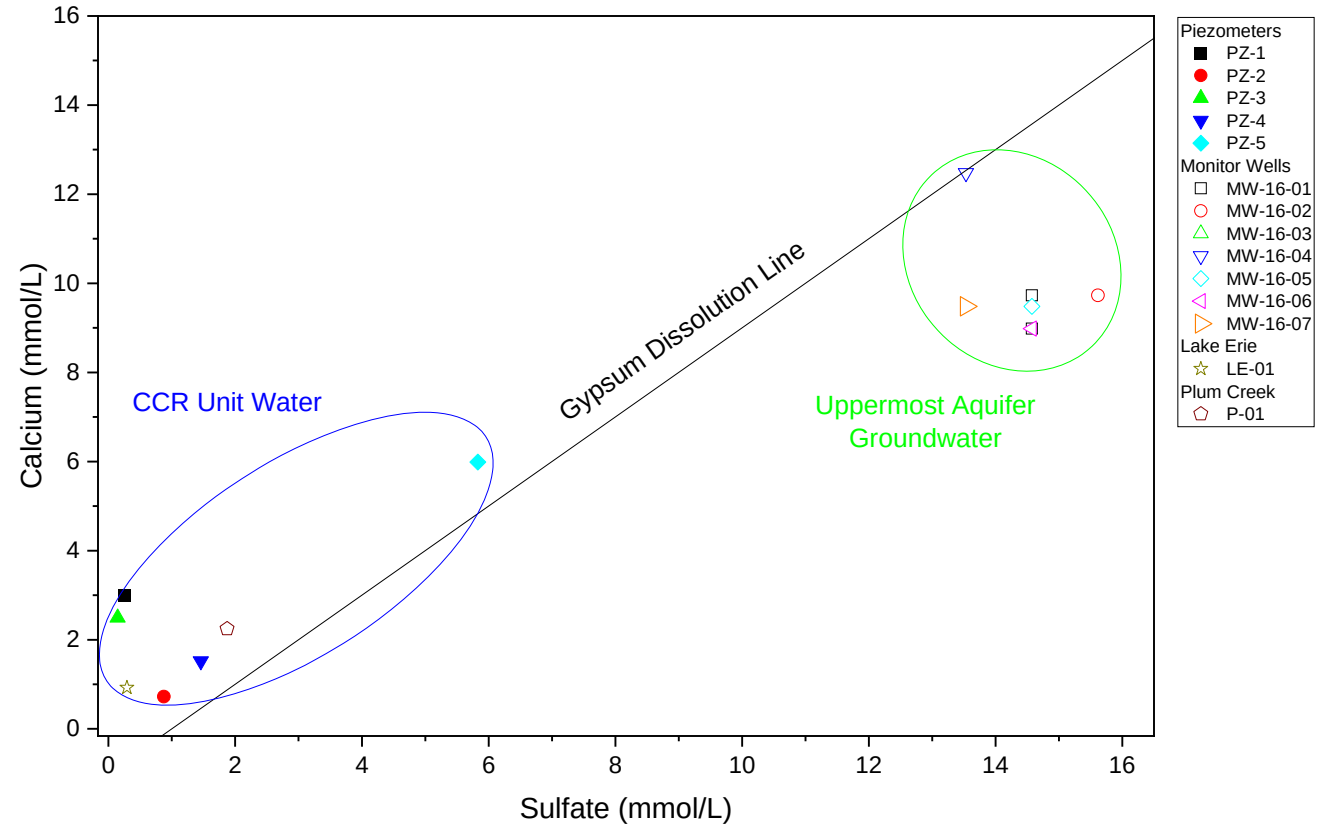


Figure 5 - Piper Diagram
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan

Figure 6

Summary of Caclium and Sulfate Saturation with Chloride and Sulfate Concentrations
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan



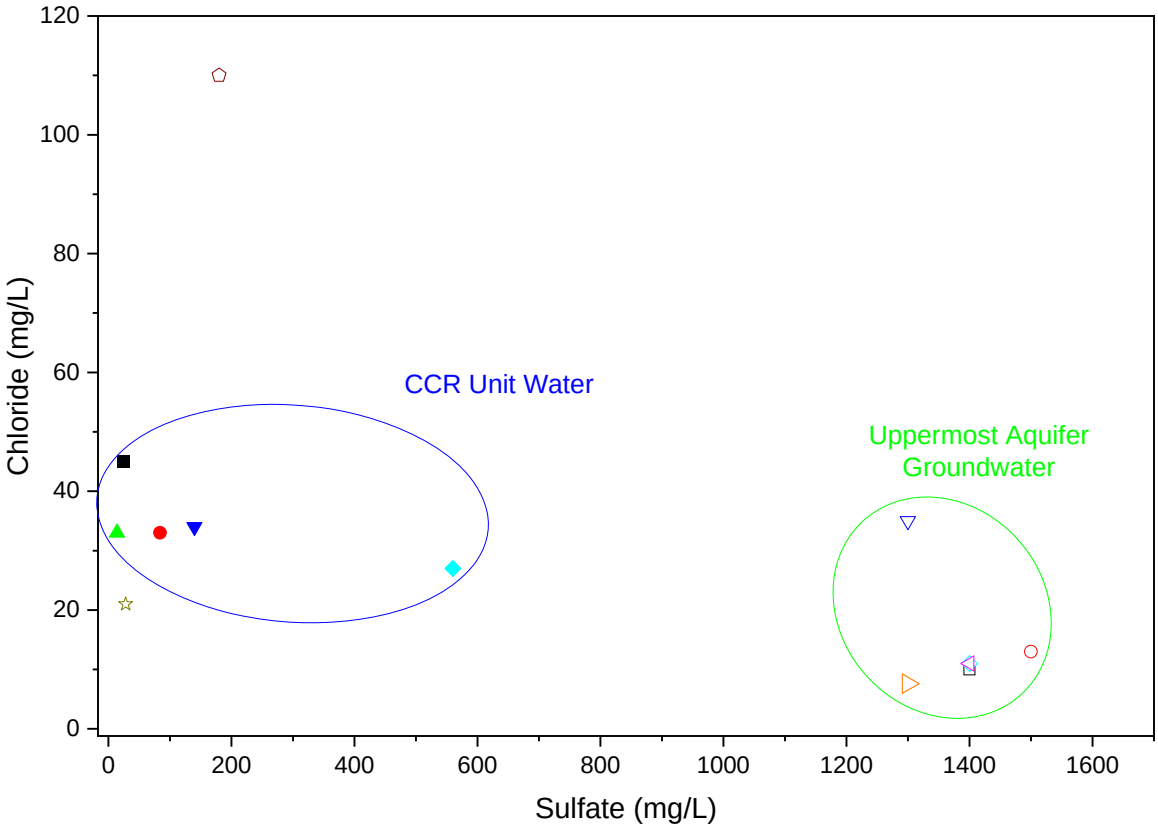
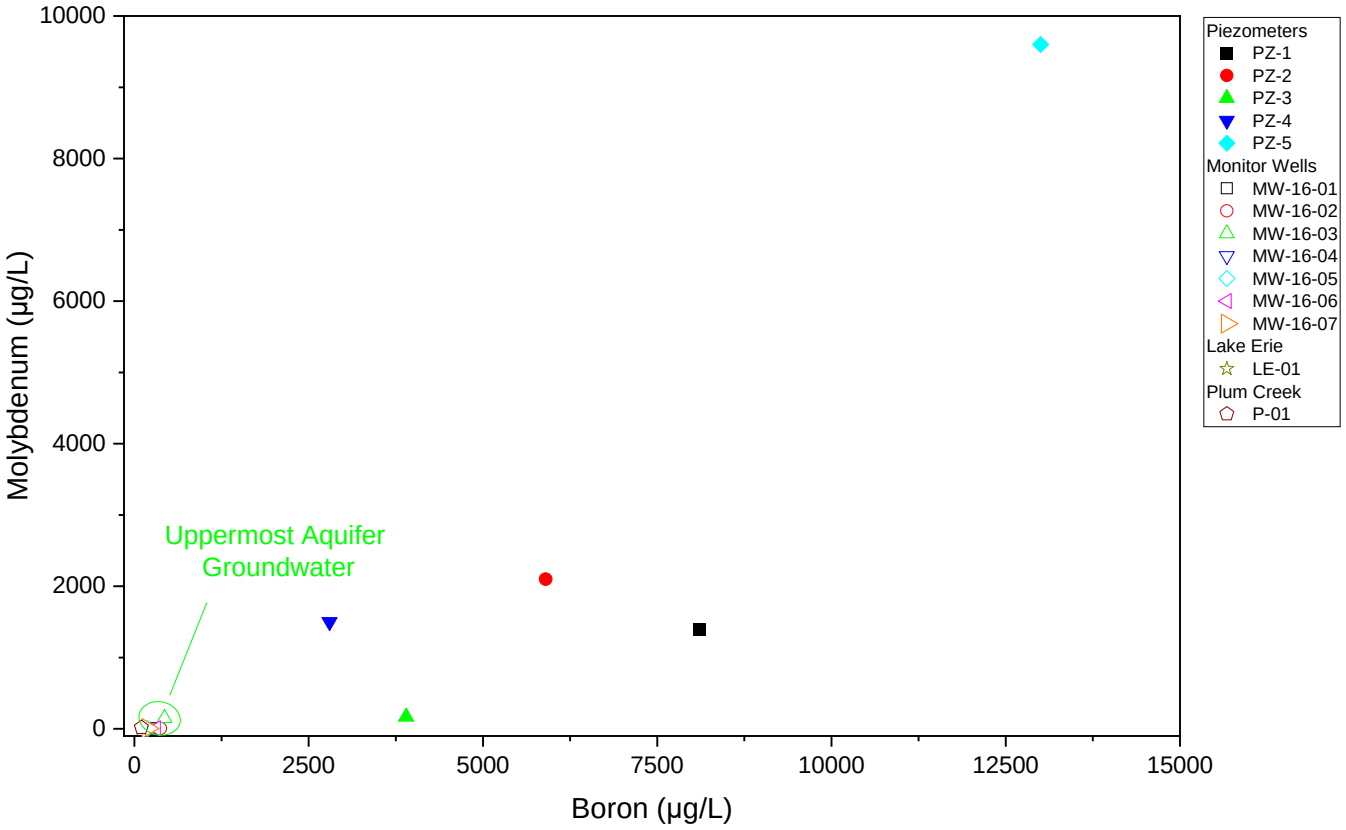


Figure 7
Molybdenum and Barium with Boron Concentrations
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan



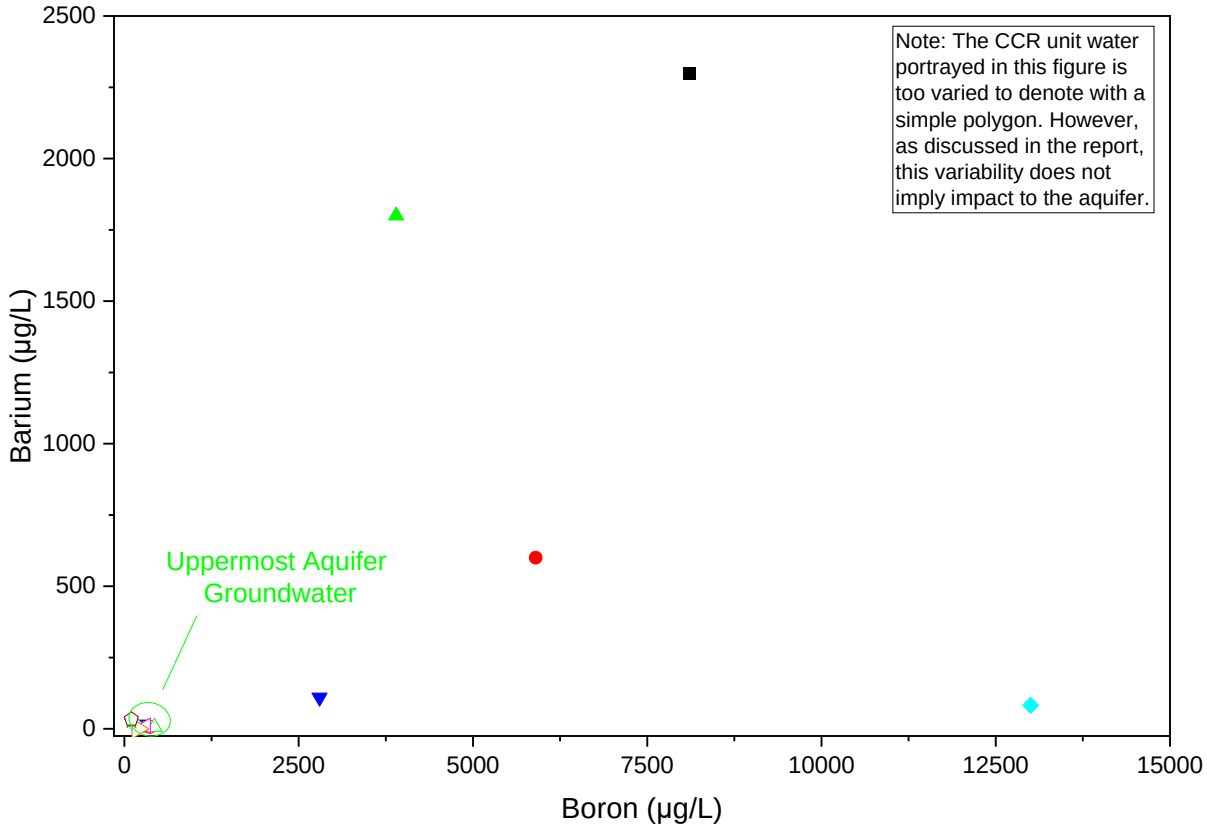
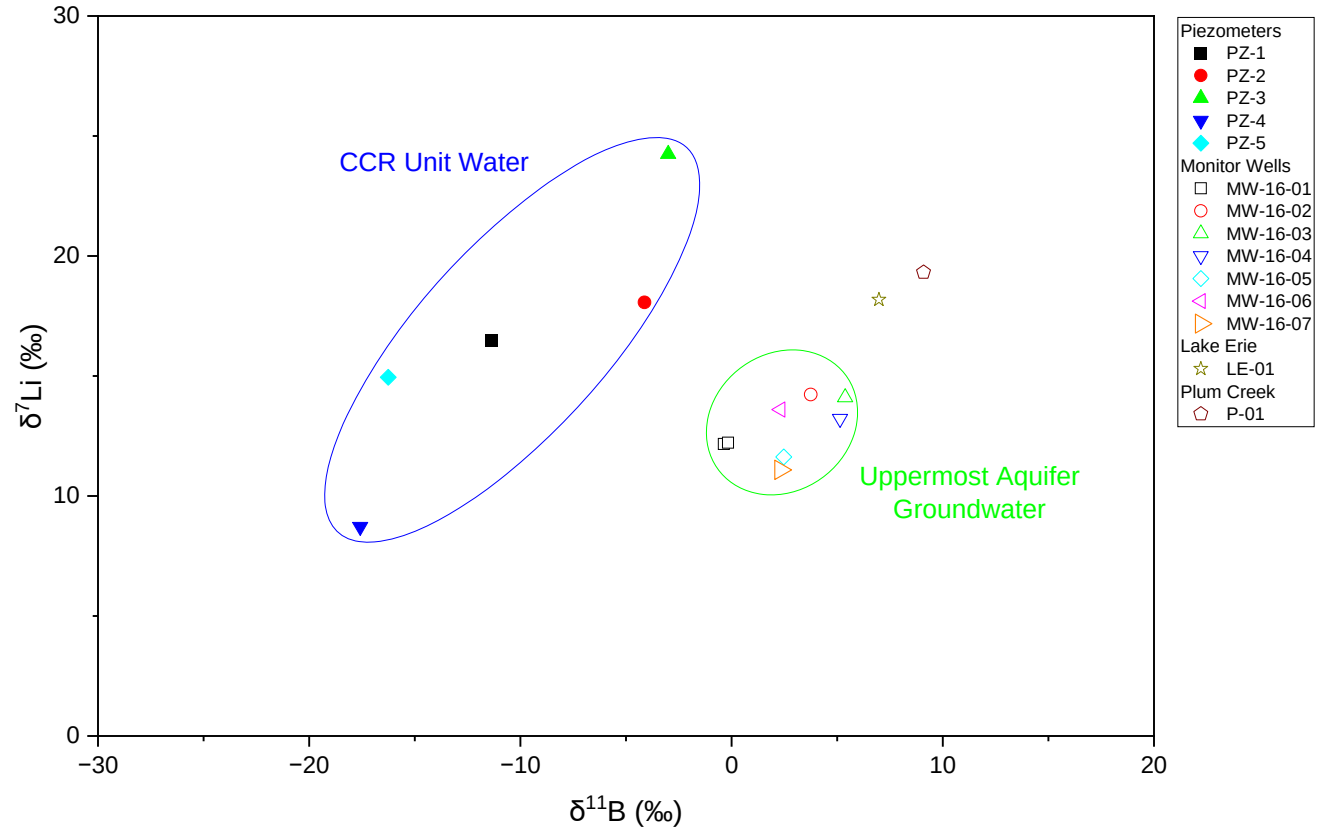


Figure 8
Summary of Lithium and Boron Isotopic and Concentration Results
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan



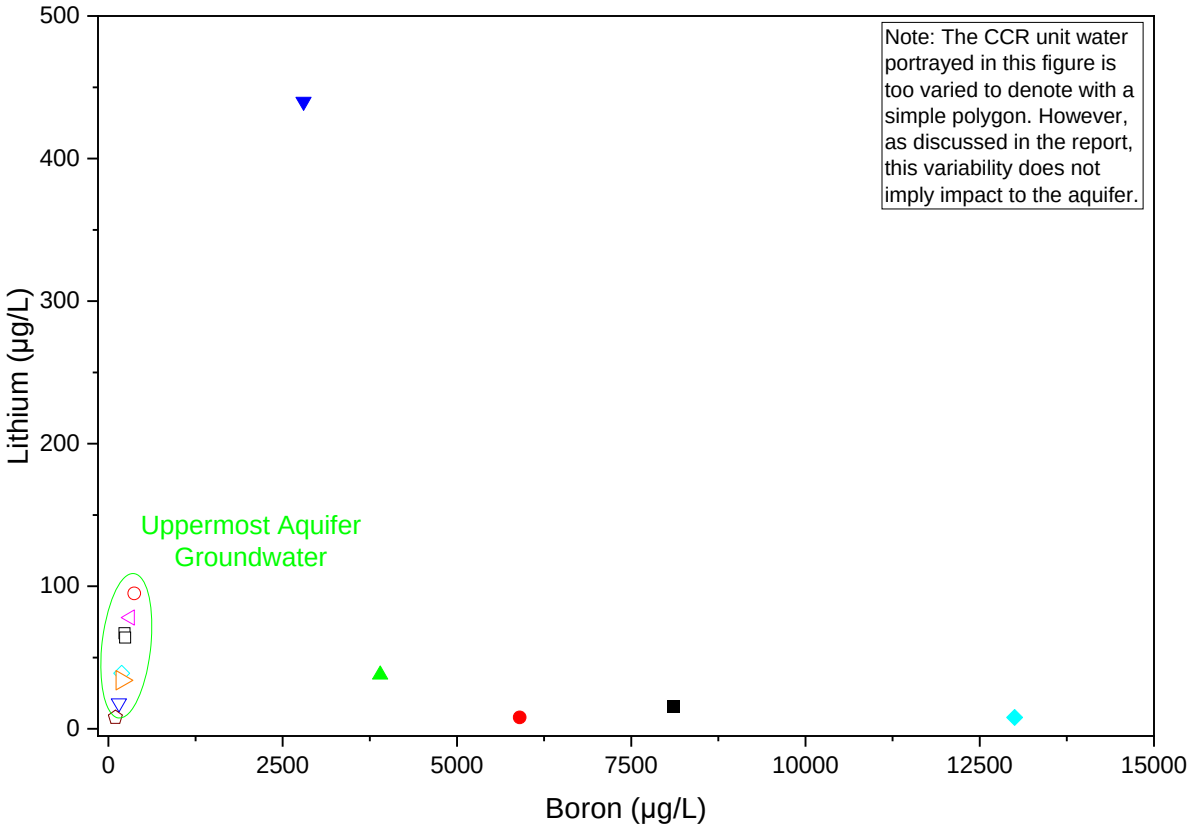
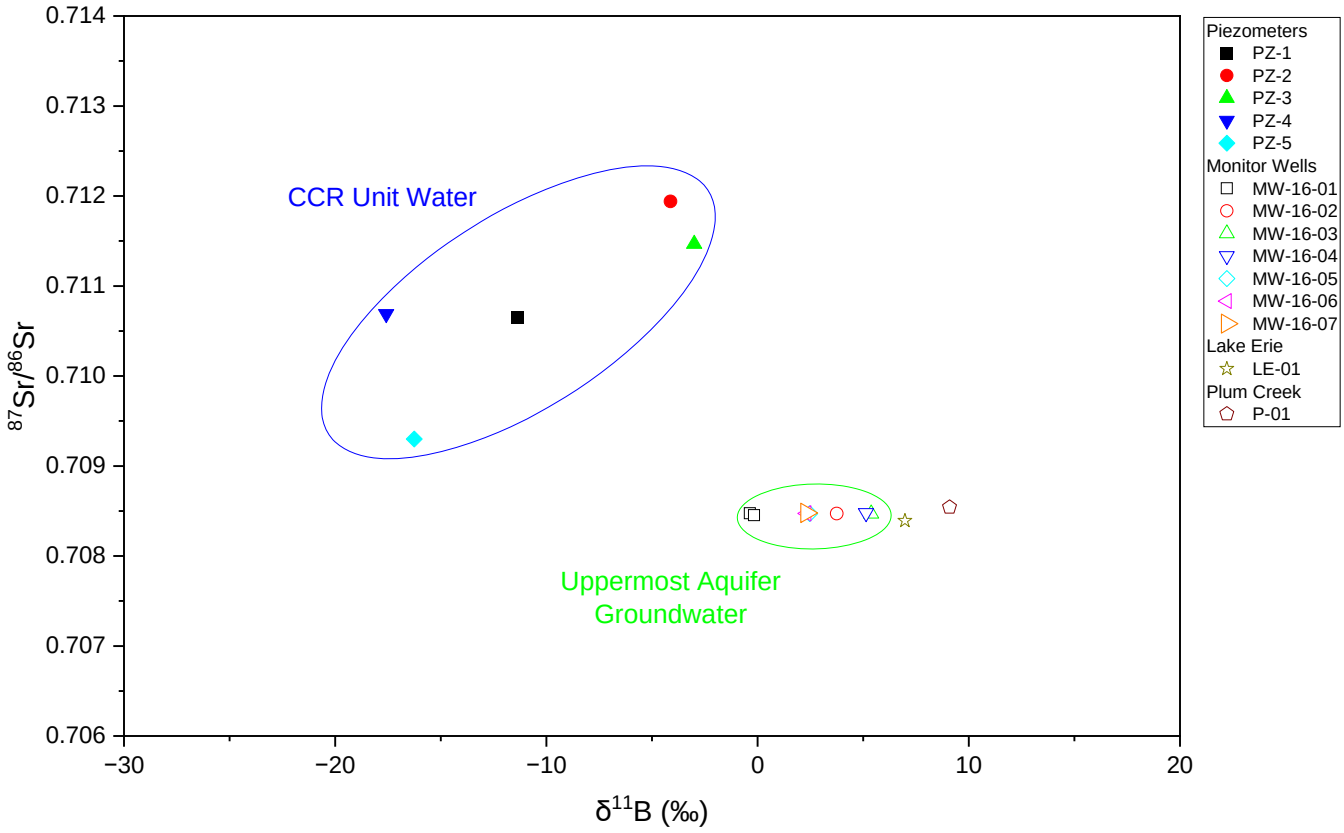


Figure 9
Summary of Strontium and Boron Isotopic and Concentration Results
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan



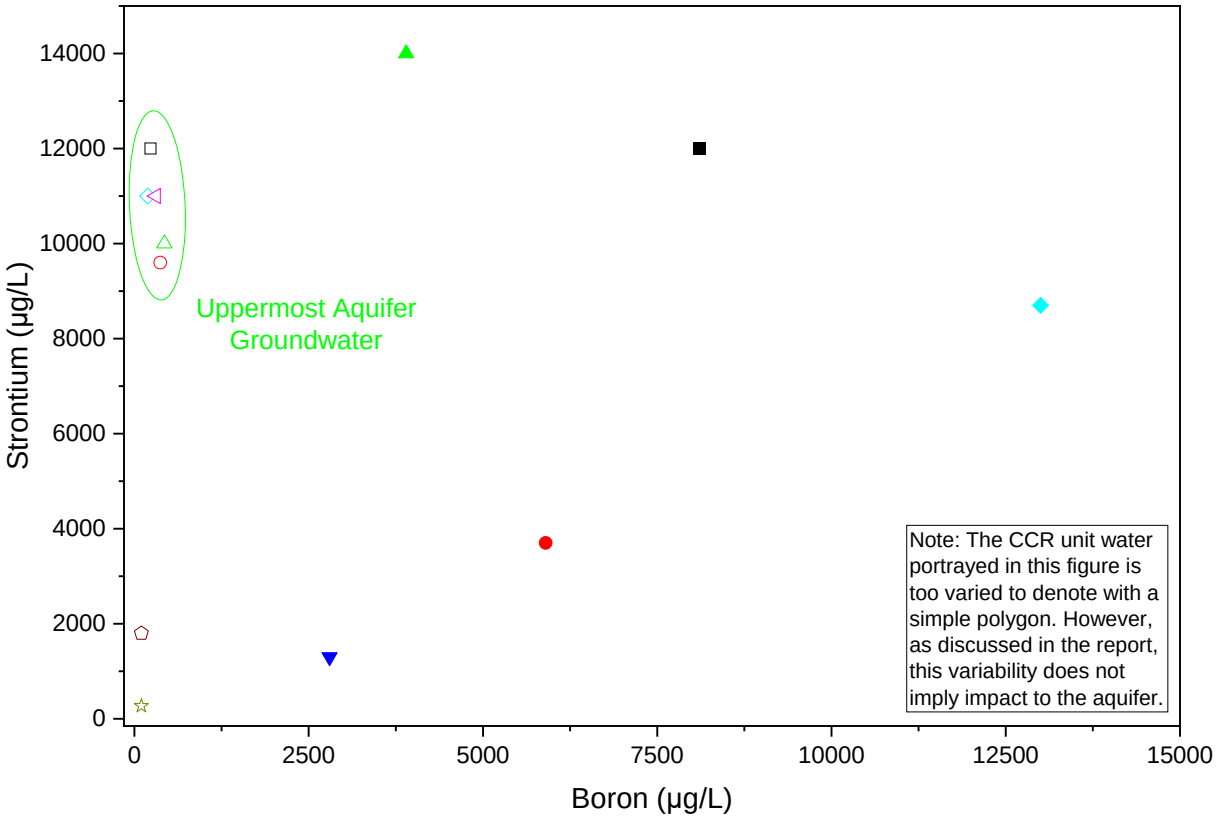
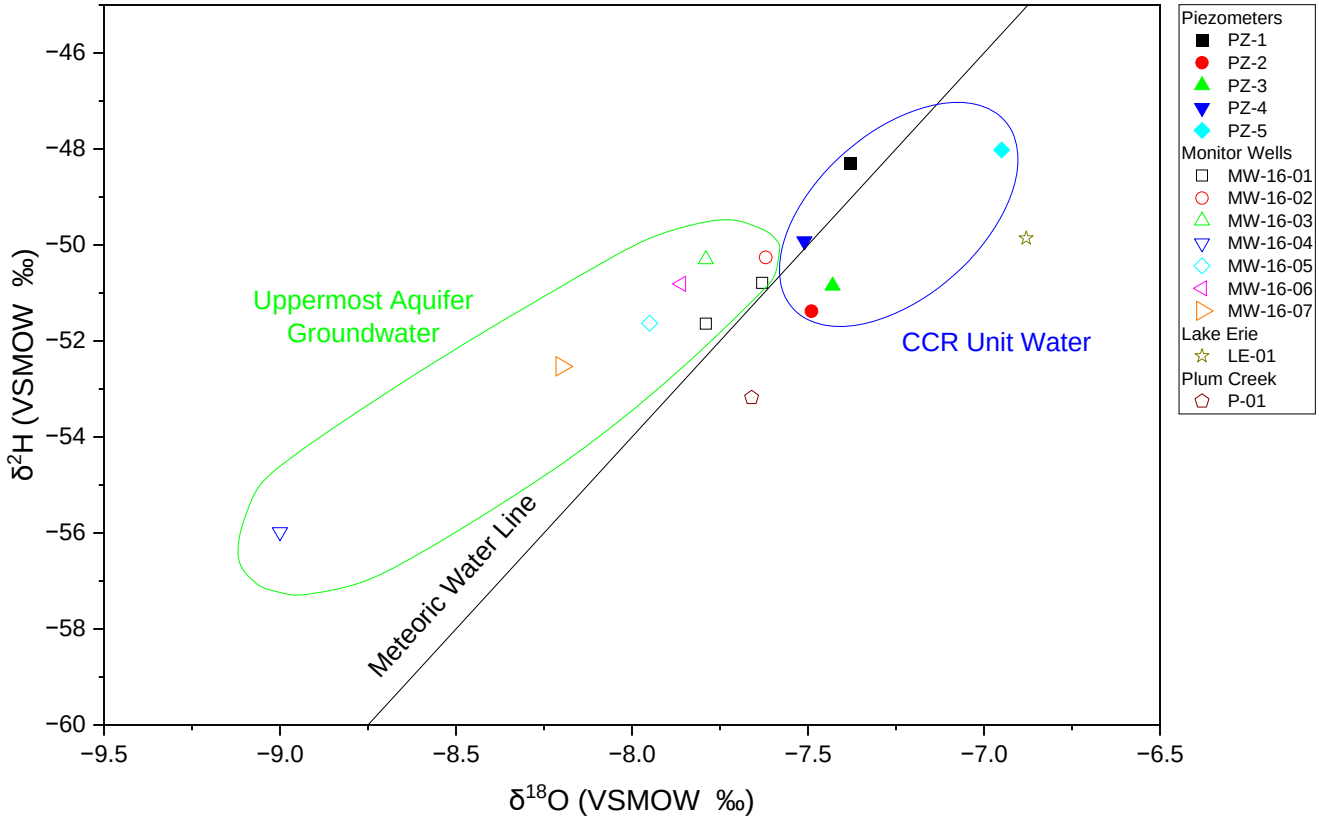


Figure 10
Summary of Hydrogen and Oxygen Isotopic Results with Carbonate Solubility
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan



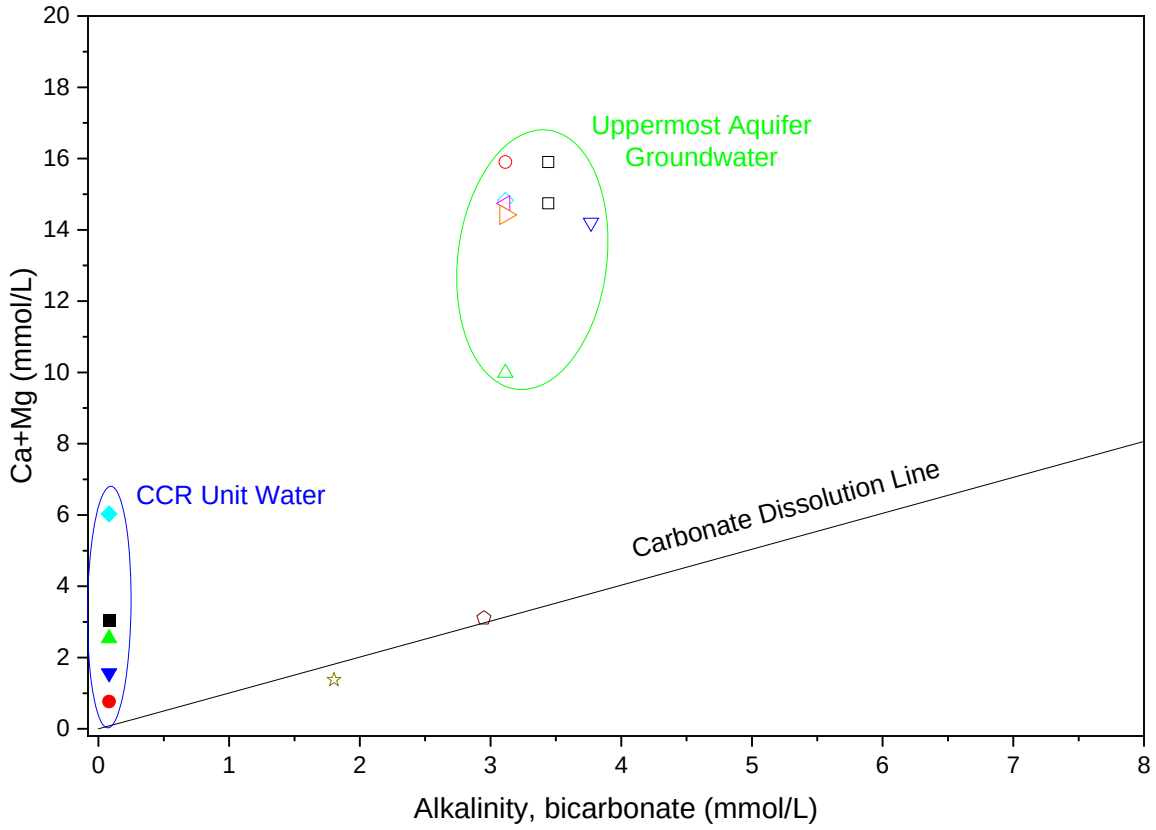
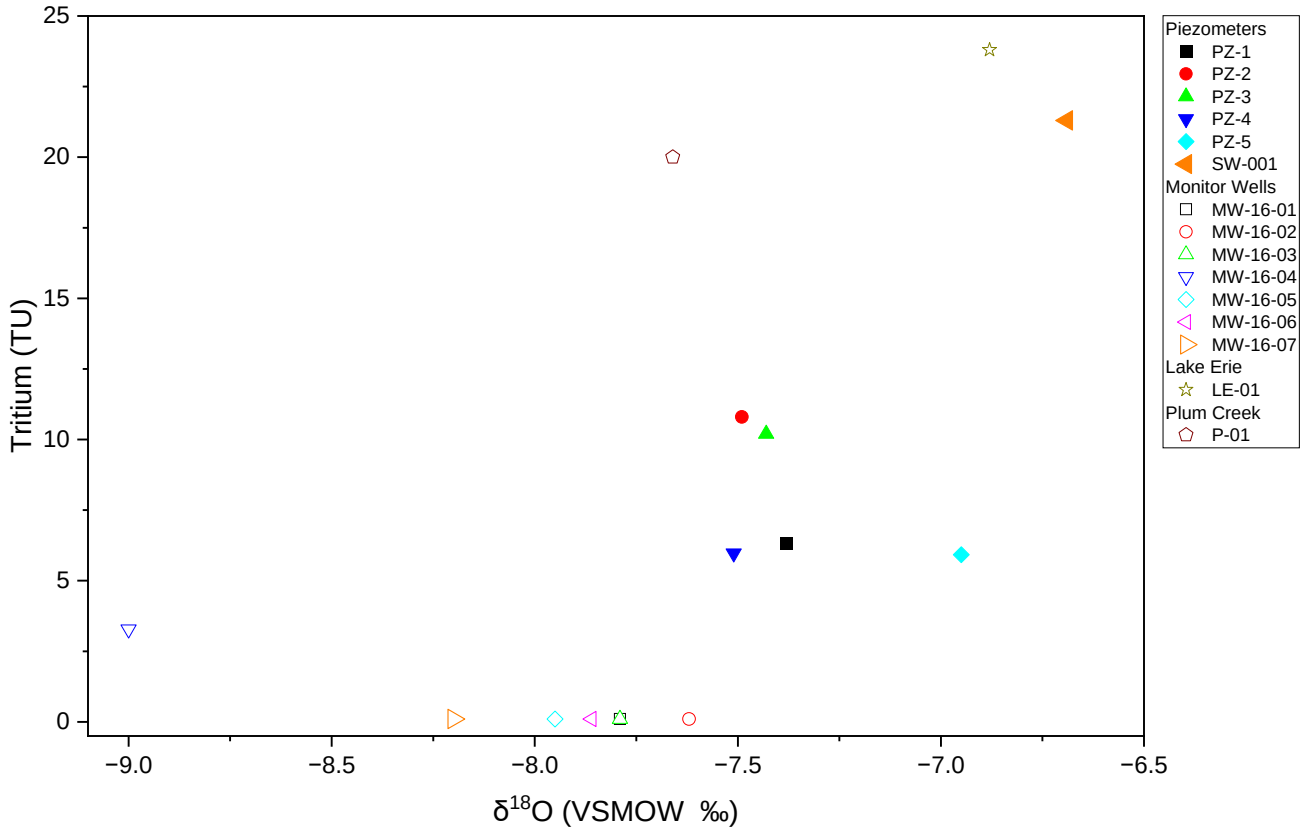


Figure 11
Tritium Data and Age Model
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan



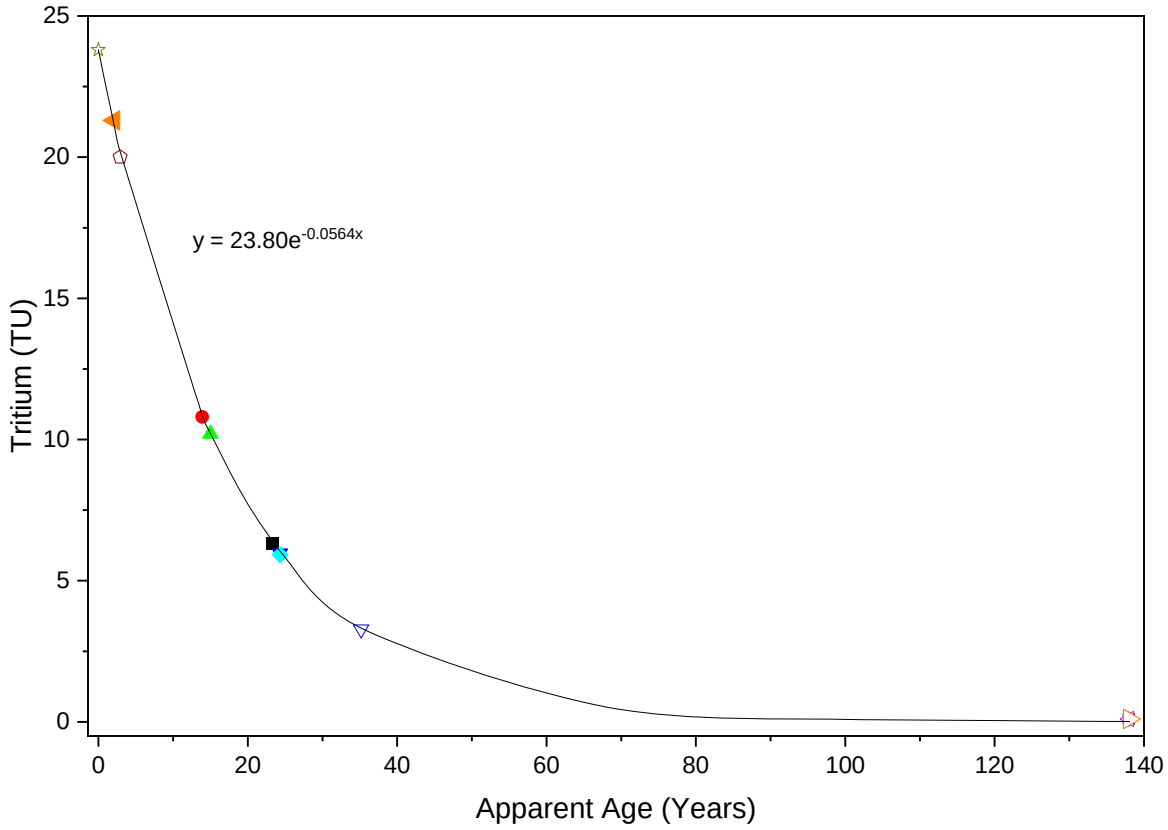


Figure 12 - Scree Plot
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan

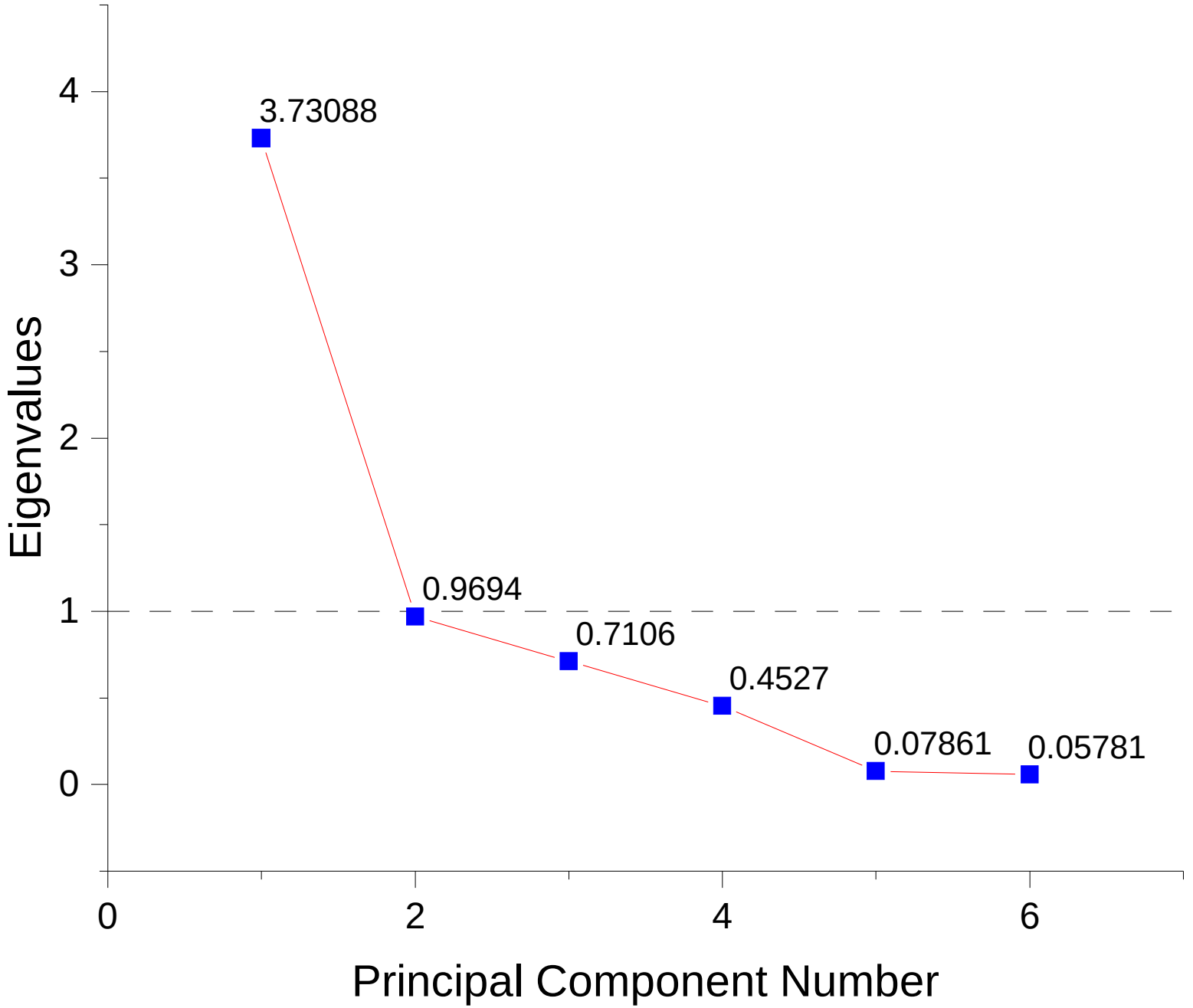


Figure 13 - Biplot
Monroe Power Plant Fly Ash Basin CCR Unit
7955 East Dunbar Road, Monroe, Michigan

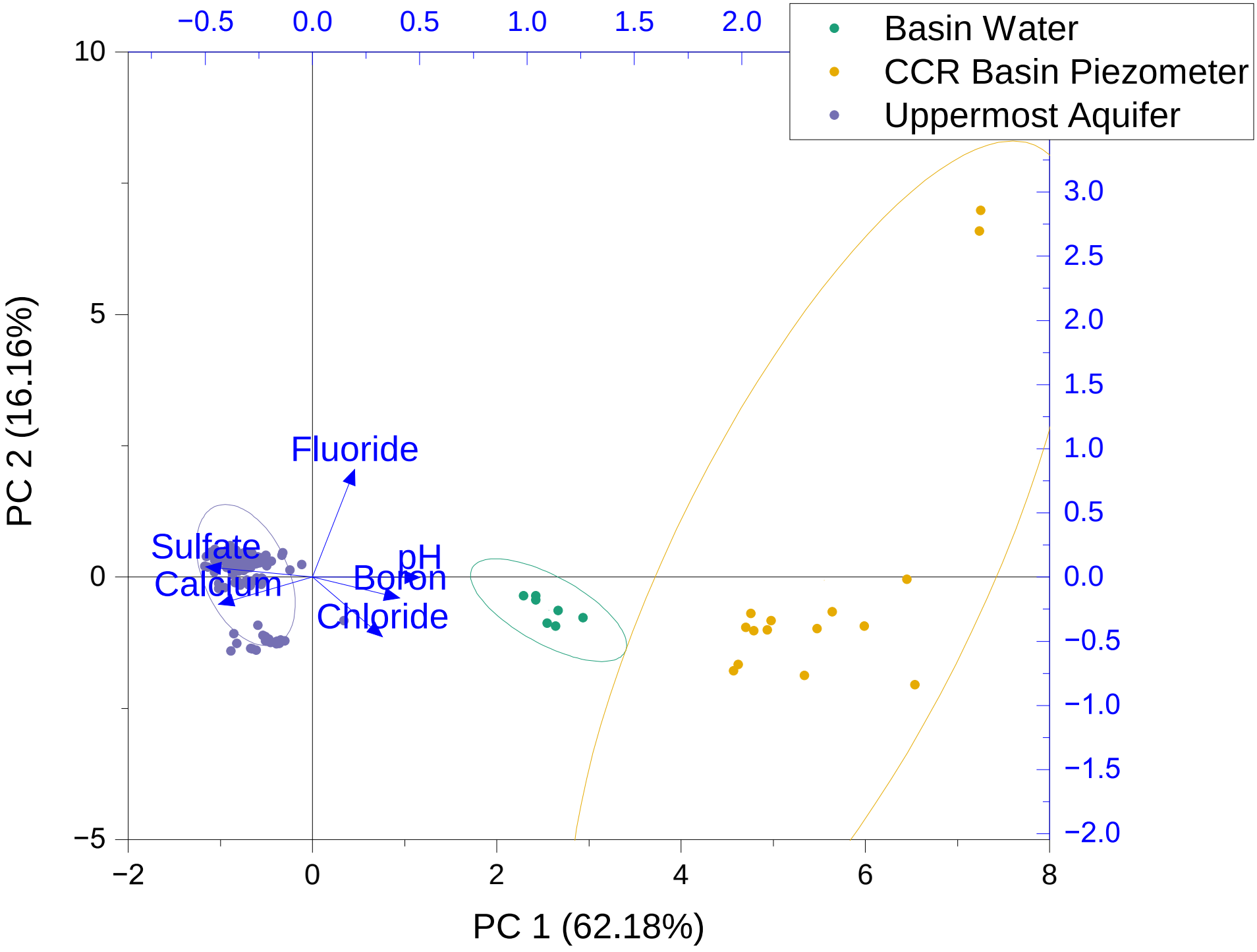


Figure 14. MONPP FAB LDA Origin

Discriminant Analysis (3/1/2023 09:36:57)

Canonical Discriminant Analysis

Eigenvalues

	Eigenvalue	Percentage of Variance	Cumulative	Canonical Correlation
1	60.62996	98.12%	98.12%	0.99185
2	1.15879	1.88%	100.00%	0.73265

Standardized Canonical Coefficients

	Canonical Variable 1	Canonical Variable 2
Boron	1.04953	0.2047
Calcium	-0.68412	0.52185
Chloride	0.40409	-0.14495
Fluoride	-0.07827	0.2455
Sulfate	-0.75829	0.68184
pH	0.50549	0.85646

Classification Summary for Training Data

Classification Count

	Predicted Group			
	Basin Water	CCR Basin Piezometer	Uppermost Aquifer	Total
Basin Water	7	0	0	7
	100.00%	0.00%	0.00%	100.00%
CCR Basin Piezometer	0	15	0	15
	0.00%	100.00%	0.00%	100.00%
Uppermost Aquifer	0	0	140	140
	0.00%	0.00%	100.00%	100.00%
Total	7	15	140	162
	4.32%	9.26%	86.42%	100.00%

Error Rate

	Basin Water	CCR Basin Piezometer	Uppermost Aquifer	Total
Prior	0.33333	0.33333	0.33333	
Rate	0.00%	0.00%	0.00%	0.00%

Error rate for classification of training data is 0.00%.

Figure 15. MONPP FAB Density of LDA Scores

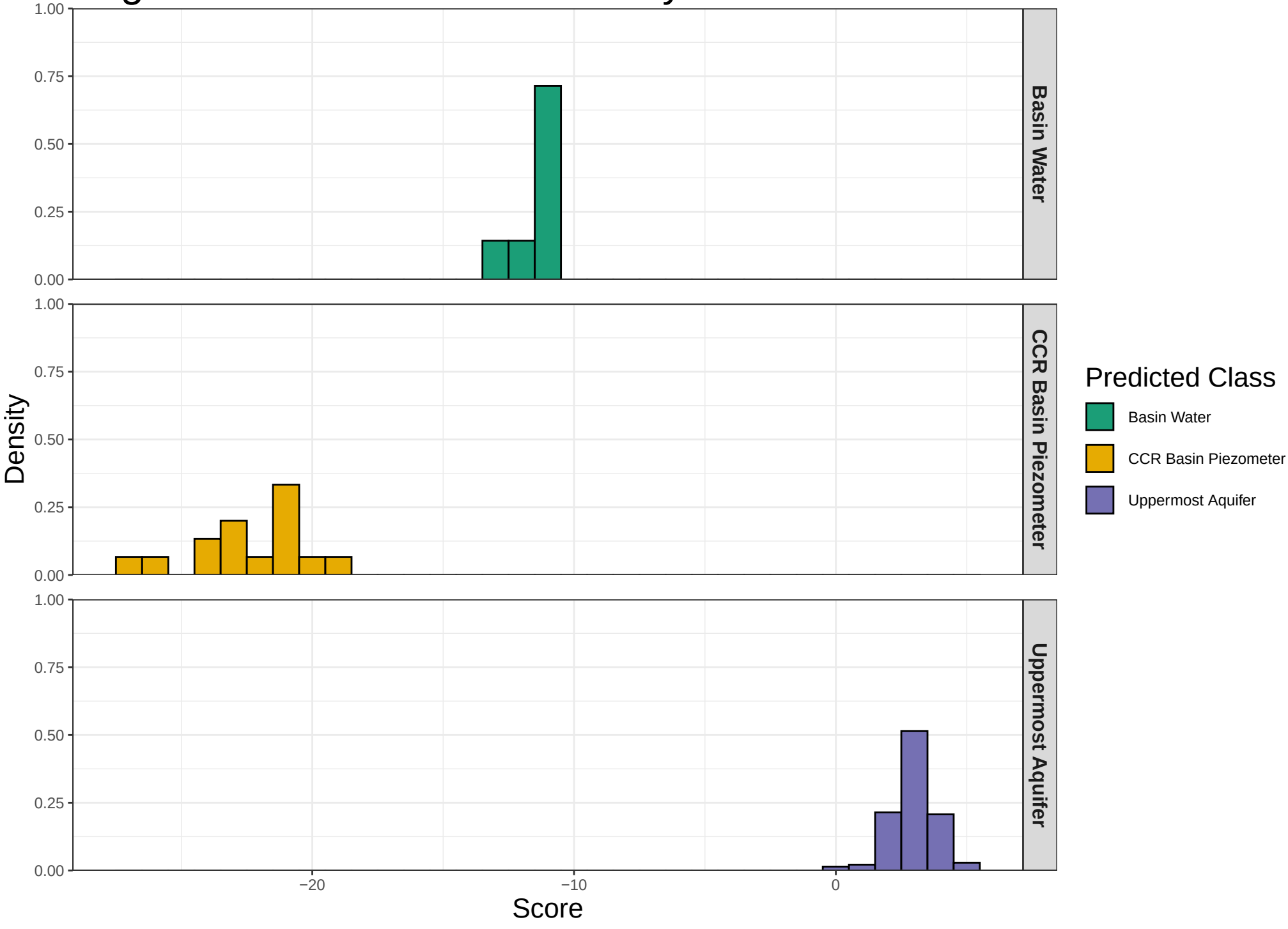


Figure 16. MONPP FAB LDA ANOVA

ANOVAOneWay (3/24/2023 12:45:45)

Descriptive Statistics

	N Analysis	N Missing	Mean	Standard Deviation	SE of Mean
Basin Water	7	0	11.22929	0.75188	0.28419
CCR Basin Piezometer	15	0	22.40427	2.20896	0.57035
Uppermost Aquifer	140	0	-2.96192	0.79248	0.06698

One Way ANOVA

Overall ANOVA

	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	2	9640.16338	4820.08169	4820.08169	<0.0001
Error	159	159	1		
Total	161	9799.16338			

Null Hypothesis: The means of all levels are equal.
Alternative Hypothesis: The means of one or more levels are different.
At the 0.05 level, the population means are significantly different.

Figure 17. MONPP FAB Time Series (1 of 2)

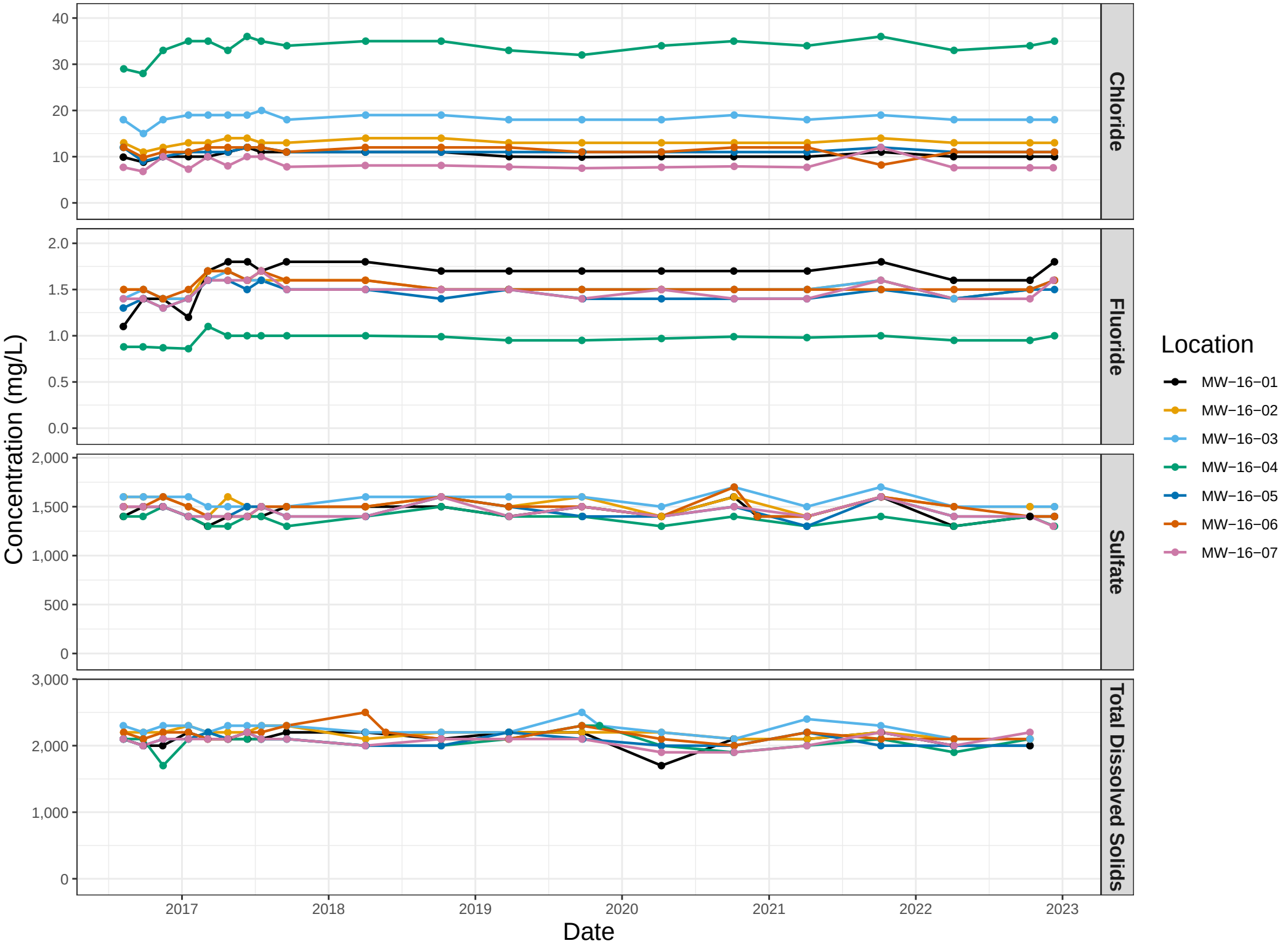
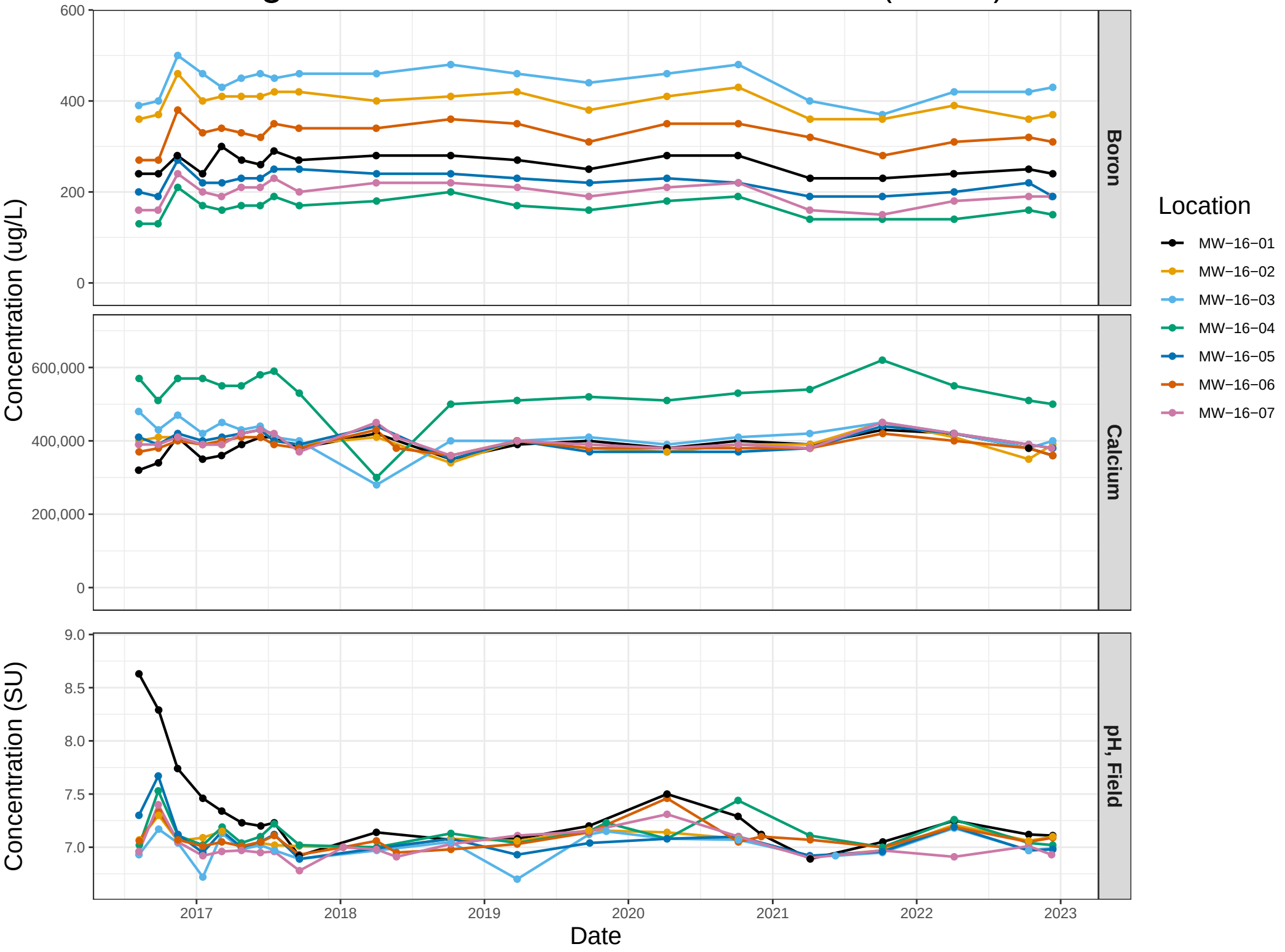


Figure 17. MONPP FAB Time Series (2 of 2)



Appendix A
December 2022 Laboratory Data

ALS Environmental

05-Jan-2021

Michael Coram
Geosyntec Consultants
2100 Commonwealth Blvd.
Suite 100
Ann Arbor, MI 48105

Re: **DTE- Monroe (GLP-8014)** Work Order: **20121750**

Dear Michael,

ALS Environmental received 5 samples on 18-Dec-2020 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 26.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 05-Jan-21

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: **20121750**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
20121750-01	PZ-1	Groundwater		12/14/2020 08:00	12/18/2020 10:00	☐
20121750-02	PZ-2	Groundwater		12/14/2020 09:00	12/18/2020 10:00	☐
20121750-03	PZ-3	Groundwater		12/15/2020 08:00	12/18/2020 10:00	☐
20121750-04	PZ-4	Groundwater		12/14/2020 10:00	12/18/2020 10:00	☐
20121750-05	PZ-5	Groundwater		12/15/2020 10:00	12/18/2020 10:00	☐

ALS Group, USA

Date: 05-Jan-21

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 20121750

Case Narrative

Samples for the above noted Work Order were received on 12/18/2020. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:
No other deviations or anomalies were noted.

Wet Chemistry:

Batch R306912, Method SW9040C, Sample PZ-3 (20121750-03B): Possible bias due to sodium error at pH > 10. A low sodium electrode is not used in the measurement process.

Batch R306825, Method SW9040C, Sample LCS-R306825: Samples were processed outside of holding time for pH, as the analysis is a field test and holding time is defined as 15 minutes.Batch R307145, Method IC_9056_W, Sample 20121752-03B MSD: 1

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
°C	Degrees Celcius
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *05-Jan-21*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 20121750
Sample ID: PZ-1
Lab ID: 20121750-01
Collection Date: 12/14/2020 08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 12/28/20 11:57	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	12/28/2020 01:09 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 12/30/20 15:00	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	12/30/2020 08:54 PM
Arsenic	**0.0098**		**0.0050**	**mg/L**	1	12/30/2020 08:54 PM
Barium	**2.1**		**0.050**	**mg/L**	10	12/31/2020 05:01 PM
Beryllium	ND		0.0020	mg/L	1	12/30/2020 08:54 PM
Boron	**4.8**		**0.20**	**mg/L**	10	12/31/2020 05:01 PM
Cadmium	ND		0.0020	mg/L	1	12/30/2020 08:54 PM
Calcium	**100**		**0.50**	**mg/L**	1	12/30/2020 08:54 PM
Chromium	ND		0.0050	mg/L	1	12/30/2020 08:54 PM
Cobalt	ND		0.0050	mg/L	1	12/30/2020 08:54 PM
Iron	**0.83**		**0.080**	**mg/L**	1	12/30/2020 08:54 PM
Lead	ND		0.0050	mg/L	1	12/30/2020 08:54 PM
Lithium	**0.016**		**0.010**	**mg/L**	1	12/30/2020 08:54 PM
Magnesium	**0.47**		**0.20**	**mg/L**	1	12/30/2020 08:54 PM
Manganese	ND		0.0050	mg/L	1	12/30/2020 08:54 PM
Molybdenum	**1.1**		**0.0050**	**mg/L**	1	12/30/2020 08:54 PM
Potassium	**21**		**0.20**	**mg/L**	1	12/30/2020 08:54 PM
Selenium	**0.051**		**0.0050**	**mg/L**	1	12/30/2020 08:54 PM
Sodium	**44**		**0.20**	**mg/L**	1	12/30/2020 08:54 PM
Thallium	ND		0.0050	mg/L	1	12/30/2020 08:54 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	12/24/2020 05:06 PM
Alkalinity, Carbonate (as CaCO3)	**210**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Hydroxide (as CaCO3)	**240**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Phenolphthalein (as CaCO3	**340**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Total (as CaCO3)	**450**		**10**	**mg/L**	1	12/24/2020 05:06 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**43**		**10**	**mg/L**	10	12/30/2020 03:36 PM
Fluoride	**3.4**		**0.10**	**mg/L**	1	12/30/2020 05:34 PM
Sulfate	**11**		**1.0**	**mg/L**	1	12/30/2020 05:34 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.0**	H	**0.100**	**s.u.**	1	12/24/2020 05:06 PM
Temperature	**20.6**	H	**0.100**	**°C**	1	12/24/2020 05:06 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 12/20/20 17:42	Analyst: **ERW**
Total Dissolved Solids	**530**		**100**	**mg/L**	1	12/22/2020 02:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jan-21*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 20121750
Sample ID: PZ-2
Lab ID: 20121750-02
Collection Date: 12/14/2020 09:00 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 12/28/20 11:57	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	12/28/2020 01:11 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 12/30/20 15:00	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	12/30/2020 08:56 PM
Arsenic	**0.0055**		**0.0050**	**mg/L**	1	12/30/2020 08:56 PM
Barium	**0.50**		**0.0050**	**mg/L**	1	12/30/2020 08:56 PM
Beryllium	ND		0.0020	mg/L	1	12/30/2020 08:56 PM
Boron	**4.3**		**0.20**	**mg/L**	10	12/31/2020 05:02 PM
Cadmium	ND		0.0020	mg/L	1	12/30/2020 08:56 PM
Calcium	**43**		**0.50**	**mg/L**	1	12/30/2020 08:56 PM
Chromium	ND		0.0050	mg/L	1	12/30/2020 08:56 PM
Cobalt	ND		0.0050	mg/L	1	12/30/2020 08:56 PM
Iron	**0.68**		**0.080**	**mg/L**	1	12/31/2020 05:04 PM
Lead	ND		0.0050	mg/L	1	12/30/2020 08:56 PM
Lithium	ND		0.010	mg/L	1	12/30/2020 08:56 PM
Magnesium	**0.46**		**0.20**	**mg/L**	1	12/30/2020 08:56 PM
Manganese	ND		0.0050	mg/L	1	12/30/2020 08:56 PM
Molybdenum	**2.5**		**0.050**	**mg/L**	10	12/31/2020 05:02 PM
Potassium	**180**		**0.20**	**mg/L**	1	12/30/2020 08:56 PM
Selenium	**0.085**		**0.0050**	**mg/L**	1	12/30/2020 08:56 PM
Sodium	**480**		**2.0**	**mg/L**	10	12/31/2020 05:02 PM
Thallium	ND		0.0050	mg/L	1	12/30/2020 08:56 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	12/24/2020 05:06 PM
Alkalinity, Carbonate (as CaCO3)	**240**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Hydroxide (as CaCO3)	**1,000**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Phenolphthalein (as CaCO3	**1,100**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Total (as CaCO3)	**1,300**		**10**	**mg/L**	1	12/24/2020 05:06 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**31**		**20**	**mg/L**	20	12/30/2020 03:56 PM
Fluoride	**24**		**2.0**	**mg/L**	20	12/31/2020 02:21 PM
Sulfate	**51**		**20**	**mg/L**	20	12/30/2020 03:56 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.8**	H	**0.100**	**s.u.**	1	12/24/2020 05:06 PM
Temperature	**19.7**	H	**0.100**	**°C**	1	12/24/2020 05:06 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 12/20/20 17:42	Analyst: **ERW**
Total Dissolved Solids	**2,200**		**1,500**	**mg/L**	1	12/22/2020 02:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jan-21*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 20121750
Sample ID: PZ-3
Lab ID: 20121750-03
Collection Date: 12/15/2020 08:00 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 12/28/20 11:57	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	12/28/2020 01:13 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 12/30/20 15:00	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	12/30/2020 08:57 PM
Arsenic	**0.010**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Barium	**1.3**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Beryllium	ND		0.0020	mg/L	1	12/30/2020 08:57 PM
Boron	**2.5**		**0.20**	**mg/L**	10	12/31/2020 05:06 PM
Cadmium	ND		0.0020	mg/L	1	12/30/2020 08:57 PM
Calcium	**88**		**0.50**	**mg/L**	1	12/30/2020 08:57 PM
Chromium	**0.0078**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Cobalt	ND		0.0050	mg/L	1	12/30/2020 08:57 PM
Iron	**2.1**		**0.080**	**mg/L**	1	12/30/2020 08:57 PM
Lead	**0.0053**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Lithium	**0.016**		**0.010**	**mg/L**	1	12/30/2020 08:57 PM
Magnesium	**1.2**		**0.20**	**mg/L**	1	12/30/2020 08:57 PM
Manganese	**0.0092**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Molybdenum	**0.20**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Potassium	**53**		**0.20**	**mg/L**	1	12/30/2020 08:57 PM
Selenium	**0.059**		**0.0050**	**mg/L**	1	12/30/2020 08:57 PM
Sodium	**88**		**0.20**	**mg/L**	1	12/30/2020 08:57 PM
Thallium	ND		0.0050	mg/L	1	12/30/2020 08:57 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	12/29/2020 11:55 AM
Alkalinity, Carbonate (as CaCO3)	**93**		**10**	**mg/L**	1	12/29/2020 11:55 AM
Alkalinity, Hydroxide (as CaCO3)	**320**		**10**	**mg/L**	1	12/29/2020 11:55 AM
Alkalinity, Phenolphthalein (as CaCO3	**370**		**10**	**mg/L**	1	12/29/2020 11:55 AM
Alkalinity, Total (as CaCO3)	**420**		**10**	**mg/L**	1	12/29/2020 11:55 AM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**30**		**16**	**mg/L**	16	12/30/2020 04:48 PM
Fluoride	**0.87**		**0.10**	**mg/L**	1	12/30/2020 06:13 PM
Sulfate	**29**		**16**	**mg/L**	16	12/30/2020 04:48 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.5**	H	**0.100**	**s.u.**	1	12/29/2020 11:55 AM
Temperature	**20.5**	H	**0.100**	**°C**	1	12/29/2020 11:55 AM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 12/20/20 17:42	Analyst: **ERW**
Total Dissolved Solids	**740**		**300**	**mg/L**	1	12/22/2020 02:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jan-21*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 20121750
Sample ID: PZ-4
Lab ID: 20121750-04
Collection Date: 12/14/2020 10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 12/30/20 13:08	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	12/30/2020 01:23 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 12/30/20 15:00	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	12/30/2020 09:03 PM
Arsenic	**0.11**		**0.0050**	**mg/L**	1	12/30/2020 09:03 PM
Barium	**0.099**		**0.0050**	**mg/L**	1	12/30/2020 09:03 PM
Beryllium	ND		0.0020	mg/L	1	12/30/2020 09:03 PM
Boron	**2.6**		**0.20**	**mg/L**	10	12/31/2020 05:07 PM
Cadmium	ND		0.0020	mg/L	1	12/30/2020 09:03 PM
Calcium	**54**		**0.50**	**mg/L**	1	12/30/2020 09:03 PM
Chromium	ND		0.0050	mg/L	1	12/30/2020 09:03 PM
Cobalt	ND		0.0050	mg/L	1	12/30/2020 09:03 PM
Iron	**0.45**		**0.080**	**mg/L**	1	12/30/2020 09:03 PM
Lead	ND		0.0050	mg/L	1	12/30/2020 09:03 PM
Lithium	**0.36**		**0.010**	**mg/L**	1	12/30/2020 09:03 PM
Magnesium	ND		0.20	mg/L	1	12/30/2020 09:03 PM
Manganese	ND		0.0050	mg/L	1	12/30/2020 09:03 PM
Molybdenum	**2.2**		**0.050**	**mg/L**	10	12/31/2020 05:07 PM
Potassium	**66**		**0.20**	**mg/L**	1	12/30/2020 09:03 PM
Selenium	**0.030**		**0.0050**	**mg/L**	1	12/30/2020 09:03 PM
Sodium	**52**		**0.20**	**mg/L**	1	12/30/2020 09:03 PM
Thallium	ND		0.0050	mg/L	1	12/30/2020 09:03 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	12/24/2020 05:06 PM
Alkalinity, Carbonate (as CaCO3)	**120**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Hydroxide (as CaCO3)	**390**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Phenolphthalein (as CaCO3	**450**		**10**	**mg/L**	1	12/24/2020 05:06 PM
Alkalinity, Total (as CaCO3)	**510**		**10**	**mg/L**	1	12/24/2020 05:06 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**33**		**8.0**	**mg/L**	8	12/30/2020 05:05 PM
Fluoride	ND		0.10	mg/L	1	12/30/2020 06:32 PM
Sulfate	**130**		**8.0**	**mg/L**	8	12/30/2020 05:05 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.4**	H	**0.100**	**s.u.**	1	12/24/2020 05:06 PM
Temperature	**20.2**	H	**0.100**	**°C**	1	12/24/2020 05:06 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 12/20/20 17:42	Analyst: **ERW**
Total Dissolved Solids	**450**		**100**	**mg/L**	1	12/22/2020 02:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jan-21*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 20121750
Sample ID: PZ-5
Lab ID: 20121750-05
Collection Date: 12/15/2020 10:00 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 12/30/20 13:08	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	12/30/2020 01:25 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 12/30/20 15:00	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	12/30/2020 09:04 PM
Arsenic	**0.038**		**0.0050**	**mg/L**	1	12/30/2020 09:04 PM
Barium	**0.16**		**0.0050**	**mg/L**	1	12/30/2020 09:04 PM
Beryllium	ND		0.0020	mg/L	1	12/30/2020 09:04 PM
Boron	**12**		**0.20**	**mg/L**	10	12/31/2020 05:12 PM
Cadmium	ND		0.0020	mg/L	1	12/30/2020 09:04 PM
Calcium	**270**		**5.0**	**mg/L**	10	12/31/2020 05:12 PM
Chromium	**0.0054**		**0.0050**	**mg/L**	1	12/30/2020 09:04 PM
Cobalt	ND		0.0050	mg/L	1	12/30/2020 09:04 PM
Iron	**0.79**		**0.080**	**mg/L**	1	12/30/2020 09:04 PM
Lead	ND		0.0050	mg/L	1	12/30/2020 09:04 PM
Lithium	ND		0.010	mg/L	1	12/30/2020 09:04 PM
Magnesium	**0.78**		**0.20**	**mg/L**	1	12/30/2020 09:04 PM
Manganese	**0.0050**		**0.0050**	**mg/L**	1	12/30/2020 09:04 PM
Molybdenum	**9.4**		**0.050**	**mg/L**	10	12/31/2020 05:12 PM
Potassium	**3.3**		**0.20**	**mg/L**	1	12/30/2020 09:04 PM
Selenium	**0.015**		**0.0050**	**mg/L**	1	12/30/2020 09:04 PM
Sodium	**1.4**		**0.20**	**mg/L**	1	12/30/2020 09:04 PM
Thallium	ND		0.0050	mg/L	1	12/30/2020 09:04 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	12/29/2020 11:55 AM
Alkalinity, Carbonate (as CaCO3)	**110**		**10**	**mg/L**	1	12/29/2020 11:55 AM
Alkalinity, Hydroxide (as CaCO3)	**47**		**10**	**mg/L**	1	12/29/2020 11:55 AM
Alkalinity, Phenolphthalein (as CaCO3	**100**		**10**	**mg/L**	1	12/29/2020 11:55 AM
Alkalinity, Total (as CaCO3)	**150**		**10**	**mg/L**	1	12/29/2020 11:55 AM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**25**		**4.0**	**mg/L**	4	12/30/2020 05:22 PM
Fluoride	**0.36**		**0.10**	**mg/L**	1	12/30/2020 06:51 PM
Sulfate	**560**		**80**	**mg/L**	80	12/31/2020 02:40 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**9.90**	H	**0.100**	**s.u.**	1	12/29/2020 11:55 AM
Temperature	**21.0**	H	**0.100**	**°C**	1	12/29/2020 11:55 AM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 12/20/20 17:42	Analyst: **ERW**
Total Dissolved Solids	**970**		**100**	**mg/L**	1	12/22/2020 02:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 05-Jan-21

Client: Geosyntec Consultants

QC BATCH REPORT

Work Order: 20121750

Project: DTE- Monroe (GLP-8014)

Batch ID: **169919** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-169919-169919** Units: **mg/L** Analysis Date: **12/28/2020 01:00 PM**

Client ID: Run ID: **HG4_201228A** SeqNo: **7031216** Prep Date: **12/28/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-169919-169919** Units: **mg/L** Analysis Date: **12/28/2020 01:02 PM**

Client ID: Run ID: **HG4_201228A** SeqNo: **7031217** Prep Date: **12/28/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002235	0.00020	0.002	0	112	80-120	0			

MS Sample ID: **20122026-01CMS** Units: **mg/L** Analysis Date: **12/28/2020 01:41 PM**

Client ID: Run ID: **HG4_201228A** SeqNo: **7031239** Prep Date: **12/28/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002235	0.00020	0.002	0.0000015	112	75-125	0			

MSD Sample ID: **20122026-01CMSD** Units: **mg/L** Analysis Date: **12/28/2020 01:43 PM**

Client ID: Run ID: **HG4_201228A** SeqNo: **7031240** Prep Date: **12/28/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002235	0.00020	0.002	0.0000015	112	75-125	0.002235	0	20	

The following samples were analyzed in this batch: 20121750-01A 20121750-02A 20121750-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **170071** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-170071-170071** Units: **mg/L** Analysis Date: **12/30/2020 01:14 PM**
Client ID: Run ID: **HG4_201230A** SeqNo: **7040771** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-170071-170071** Units: **mg/L** Analysis Date: **12/30/2020 01:16 PM**
Client ID: Run ID: **HG4_201230A** SeqNo: **7040772** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002085	0.00020	0.002	0	104	80-120	0			

MS Sample ID: **20121813-10DMS** Units: **mg/L** Analysis Date: **12/30/2020 01:55 PM**
Client ID: Run ID: **HG4_201230A** SeqNo: **7040812** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00219	0.00020	0.002	0.000003	109	75-125	0			

MSD Sample ID: **20121813-10DMSD** Units: **mg/L** Analysis Date: **12/30/2020 01:57 PM**
Client ID: Run ID: **HG4_201230A** SeqNo: **7040815** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002115	0.00020	0.002	0.000003	106	75-125	0.00219	3.48	20	

The following samples were analyzed in this batch: 20121750-04A 20121750-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **170083** Instrument ID **ICPMS4** Method: **SW6020B**

MBLK	Sample ID: **MBLK-170083-170083**				Units: **mg/L**			Analysis Date: **12/30/2020 08:51 PM**		
Client ID:		Run ID: **ICPMS4_201230A**			SeqNo: **7043005**		Prep Date: **12/30/2020**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Iron	ND	0.080								
Lead	ND	0.0050								
Lithium	ND	0.010								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Sodium	ND	0.20								
Thallium	ND	0.0050								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **170083** Instrument ID **ICPMS4** Method: **SW6020B**

LCS	Sample ID: **LCS-170083-170083**				Units: **mg/L**			Analysis Date: **12/30/2020 08:52 PM**		
Client ID:	Run ID: **ICPMS4_201230A**				SeqNo: **7043006**			Prep Date: **12/30/2020**		DF: **1**
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09984	0.0050	0.1	0	99.8	80-120	0			
Arsenic	0.099	0.0050	0.1	0	99	80-120	0			
Barium	0.1005	0.0050	0.1	0	100	80-120	0			
Beryllium	0.09793	0.0020	0.1	0	97.9	80-120	0			
Boron	0.4459	0.020	0.5	0	89.2	80-120	0			
Cadmium	0.1049	0.0020	0.1	0	105	80-120	0			
Calcium	9.959	0.50	10	0	99.6	80-120	0			
Chromium	0.09764	0.0050	0.1	0	97.6	80-120	0			
Cobalt	0.09865	0.0050	0.1	0	98.6	80-120	0			
Iron	9.742	0.080	10	0	97.4	80-120	0			
Lead	0.09896	0.0050	0.1	0	99	80-120	0			
Lithium	0.09939	0.010	0.1	0	99.4	80-120	0			
Magnesium	10.41	0.20	10	0	104	80-120	0			
Manganese	0.09726	0.0050	0.1	0	97.3	80-120	0			
Molybdenum	0.09949	0.0050	0.1	0	99.5	80-120	0			
Potassium	10.09	0.20	10	0	101	80-120	0			
Selenium	0.09876	0.0050	0.1	0	98.8	80-120	0			
Sodium	10.48	0.20	10	0	105	80-120	0			
Thallium	0.09419	0.0050	0.1	0	94.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **170083** Instrument ID **ICPMS4** Method: **SW6020B**

MS Sample ID: **20121813-01DMS** Units: **mg/L** Analysis Date: **12/30/2020 09:13 PM**
Client ID: Run ID: **ICPMS4_201230A** SeqNo: **7043018** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0939	0.0050	0.1	0.000019	93.9	75-125	0			
Arsenic	0.09542	0.0050	0.1	0.000523	94.9	75-125	0			
Barium	0.1197	0.0050	0.1	0.01914	101	75-125	0			
Beryllium	0.1028	0.0020	0.1	0.003422	99.4	75-125	0			
Boron	0.5173	0.020	0.5	0.07866	87.7	75-125	0			
Cadmium	0.09866	0.0020	0.1	0.003046	95.6	75-125	0			
Calcium	63.88	0.50	10	53.04	108	75-125	0			O
Chromium	0.09053	0.0050	0.1	0.000351	90.2	75-125	0			
Cobalt	0.2039	0.0050	0.1	0.1134	90.5	75-125	0			
Iron	8.964	0.080	10	0.02083	89.4	75-125	0			
Lead	0.09794	0.0050	0.1	0.000674	97.3	75-125	0			
Lithium	0.1112	0.010	0.1	0.01095	100	75-125	0			
Magnesium	61.4	0.20	10	51.16	102	75-125	0			O
Molybdenum	0.09472	0.0050	0.1	0.001008	93.7	75-125	0			
Potassium	12.35	0.20	10	2.605	97.4	75-125	0			
Selenium	0.1012	0.0050	0.1	0.005949	95.3	75-125	0			
Sodium	65.82	0.20	10	55.83	99.9	75-125	0			O
Thallium	0.09224	0.0050	0.1	0.000037	92.2	75-125	0			

MS Sample ID: **20121813-10DMS** Units: **mg/L** Analysis Date: **12/30/2020 09:35 PM**
Client ID: Run ID: **ICPMS4_201230A** SeqNo: **7043031** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09845	0.0050	0.1	0.000041	98.4	75-125	0			
Arsenic	0.1005	0.0050	0.1	0.00021	100	75-125	0			
Barium	0.125	0.0050	0.1	0.02584	99.1	75-125	0			
Beryllium	0.1046	0.0020	0.1	0.002214	102	75-125	0			
Boron	0.5169	0.020	0.5	0.056	92.2	75-125	0			
Cadmium	0.1056	0.0020	0.1	0.005454	100	75-125	0			
Calcium	34.88	0.50	10	25.15	97.2	75-125	0			
Chromium	0.09457	0.0050	0.1	0.000785	93.8	75-125	0			
Cobalt	0.2768	0.0050	0.1	0.1806	96.2	75-125	0			
Iron	9.488	0.080	10	0.143	93.5	75-125	0			
Lead	0.09729	0.0050	0.1	0.001591	95.7	75-125	0			
Lithium	0.107	0.010	0.1	0.006549	100	75-125	0			
Magnesium	24.92	0.20	10	15.27	96.4	75-125	0			
Molybdenum	0.0977	0.0050	0.1	0.000386	97.3	75-125	0			
Potassium	12.88	0.20	10	3.03	98.5	75-125	0			
Selenium	0.09792	0.0050	0.1	0.001894	96	75-125	0			
Sodium	71.55	0.20	10	61.63	99.1	75-125	0			O
Thallium	0.09151	0.0050	0.1	0.000106	91.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **170083** Instrument ID **ICPMS4** Method: **SW6020B**

MS Sample ID: **20121813-01DMS** Units: **mg/L** Analysis Date: **12/31/2020 05:20 PM**
Client ID: Run ID: **ICPMS4_201231A** SeqNo: **7046543** Prep Date: **12/30/2020** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	3.991	0.050	0.1	3.949	41.3	75-125	0			SO

MS Sample ID: **20121813-10DMS** Units: **mg/L** Analysis Date: **12/31/2020 05:39 PM**
Client ID: Run ID: **ICPMS4_201231A** SeqNo: **7046555** Prep Date: **12/30/2020** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.091	0.050	0.1	3.865	227	75-125	0			SO

MSD Sample ID: **20121813-01DMSD** Units: **mg/L** Analysis Date: **12/30/2020 09:15 PM**
Client ID: Run ID: **ICPMS4_201230A** SeqNo: **7043019** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09655	0.0050	0.1	0.000019	96.5	75-125	0.0939	2.78	20	
Arsenic	0.09753	0.0050	0.1	0.000523	97	75-125	0.09542	2.18	20	
Barium	0.1208	0.0050	0.1	0.01914	102	75-125	0.1197	0.848	20	
Beryllium	0.1044	0.0020	0.1	0.003422	101	75-125	0.1028	1.59	20	
Boron	0.5179	0.020	0.5	0.07866	87.8	75-125	0.5173	0.103	20	
Cadmium	0.1013	0.0020	0.1	0.003046	98.3	75-125	0.09866	2.67	20	
Calcium	62.93	0.50	10	53.04	98.9	75-125	63.88	1.49	20	O
Chromium	0.09296	0.0050	0.1	0.000351	92.6	75-125	0.09053	2.65	20	
Cobalt	0.2064	0.0050	0.1	0.1134	92.9	75-125	0.2039	1.18	20	
Iron	9.236	0.080	10	0.02083	92.1	75-125	8.964	2.99	20	
Lead	0.09947	0.0050	0.1	0.000674	98.8	75-125	0.09794	1.55	20	
Lithium	0.1128	0.010	0.1	0.01095	102	75-125	0.1112	1.45	20	
Magnesium	61.51	0.20	10	51.16	104	75-125	61.4	0.185	20	O
Molybdenum	0.09663	0.0050	0.1	0.001008	95.6	75-125	0.09472	2	20	
Potassium	12.63	0.20	10	2.605	100	75-125	12.35	2.27	20	
Selenium	0.1029	0.0050	0.1	0.005949	96.9	75-125	0.1012	1.62	20	
Sodium	66.86	0.20	10	55.83	110	75-125	65.82	1.56	20	O
Thallium	0.09366	0.0050	0.1	0.000037	93.6	75-125	0.09224	1.53	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **170083** Instrument ID **ICPMS4** Method: **SW6020B**

MSD Sample ID: **20121813-10DMSD** Units: **mg/L** Analysis Date: **12/30/2020 09:37 PM**
Client ID: Run ID: **ICPMS4_201230A** SeqNo: **7043032** Prep Date: **12/30/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09824	0.0050	0.1	0.000041	98.2	75-125	0.09845	0.211	20	
Arsenic	0.09954	0.0050	0.1	0.00021	99.3	75-125	0.1005	0.917	20	
Barium	0.1229	0.0050	0.1	0.02584	97	75-125	0.125	1.7	20	
Beryllium	0.1039	0.0020	0.1	0.002214	102	75-125	0.1046	0.636	20	
Boron	0.517	0.020	0.5	0.056	92.2	75-125	0.5169	0.0288	20	
Cadmium	0.1044	0.0020	0.1	0.005454	99	75-125	0.1056	1.11	20	
Calcium	34.42	0.50	10	25.15	92.7	75-125	34.88	1.31	20	
Chromium	0.09402	0.0050	0.1	0.000785	93.2	75-125	0.09457	0.58	20	
Cobalt	0.2727	0.0050	0.1	0.1806	92.2	75-125	0.2768	1.48	20	
Iron	9.402	0.080	10	0.143	92.6	75-125	9.488	0.913	20	
Lead	0.0969	0.0050	0.1	0.001591	95.3	75-125	0.09729	0.394	20	
Lithium	0.1057	0.010	0.1	0.006549	99.1	75-125	0.107	1.23	20	
Magnesium	24.72	0.20	10	15.27	94.4	75-125	24.92	0.809	20	
Molybdenum	0.09638	0.0050	0.1	0.000386	96	75-125	0.0977	1.36	20	
Potassium	12.71	0.20	10	3.03	96.8	75-125	12.88	1.33	20	
Selenium	0.09719	0.0050	0.1	0.001894	95.3	75-125	0.09792	0.75	20	
Sodium	70.5	0.20	10	61.63	88.7	75-125	71.55	1.48	20	O
Thallium	0.09051	0.0050	0.1	0.000106	90.4	75-125	0.09151	1.1	20	

MSD Sample ID: **20121813-01DMSD** Units: **mg/L** Analysis Date: **12/31/2020 05:22 PM**
Client ID: Run ID: **ICPMS4_201231A** SeqNo: **7046544** Prep Date: **12/30/2020** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.164	0.050	0.1	3.949	215	75-125	3.991	4.26	20	SO

MSD Sample ID: **20121813-10DMSD** Units: **mg/L** Analysis Date: **12/31/2020 05:41 PM**
Client ID: Run ID: **ICPMS4_201231A** SeqNo: **7046556** Prep Date: **12/30/2020** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	4.094	0.050	0.1	3.865	229	75-125	4.091	0.0533	20	SO

The following samples were analyzed in this batch:

20121750-01A	20121750-02A	20121750-03A
20121750-04A	20121750-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **169592** Instrument ID **TDS** Method: **A2540 C-11**

MBLK Sample ID: **MBLK-169592-169592** Units: **mg/L** Analysis Date: **12/22/2020 02:09 PM**
Client ID: Run ID: **TDS_201222B** SeqNo: **7015778** Prep Date: **12/20/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	30								

LCS Sample ID: **LCS-169592-169592** Units: **mg/L** Analysis Date: **12/22/2020 02:09 PM**
Client ID: Run ID: **TDS_201222B** SeqNo: **7015777** Prep Date: **12/20/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	466	30	495	0	94.1	85-109	0			

DUP Sample ID: **20121786-01A DUP** Units: **mg/L** Analysis Date: **12/22/2020 02:09 PM**
Client ID: Run ID: **TDS_201222B** SeqNo: **7015765** Prep Date: **12/20/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	896.7	50	0	0	0	0-0	850	5.34	10	

DUP Sample ID: **20121789-04A DUP** Units: **mg/L** Analysis Date: **12/22/2020 02:09 PM**
Client ID: Run ID: **TDS_201222B** SeqNo: **7015771** Prep Date: **12/20/2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	510	50	0	0	0	0-0	500	1.98	10	

The following samples were analyzed in this batch:

20121750-01B	20121750-02B	20121750-03B
20121750-04B	20121750-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R306822** Instrument ID **Titrator 1** Method: **A2320 B-11**

MBLK Sample ID: **MB-R306822-R306822** Units: **mg/L** Analysis Date: **12/24/2020 05:06 PM**
Client ID: Run ID: **TITRATOR 1_201224C** SeqNo: **7028950** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	ND	10								
Alkalinity, Carbonate (as CaCO3)	ND	10								
Alkalinity, Hydroxide (as CaCO3)	ND	10								
Alkalinity, Phenolphthalein (as CaCO3	ND	10								
Alkalinity, Total (as CaCO3)	ND	10								

LCS Sample ID: **LCS-R306822-R306822** Units: **mg/L** Analysis Date: **12/24/2020 05:06 PM**
Client ID: Run ID: **TITRATOR 1_201224C** SeqNo: **7028951** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Carbonate (as CaCO3)	922.4	10	925	0	99.7	88-110	0			
Alkalinity, Total (as CaCO3)	1005	10	1000	0	101	89-103	0			

DUP Sample ID: **20122120-01C DUP** Units: **mg/L** Analysis Date: **12/24/2020 05:06 PM**
Client ID: Run ID: **TITRATOR 1_201224C** SeqNo: **7028957** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	ND	10	0	0	0	0-0	-1.17	0	10	

The following samples were analyzed in this batch: 20121750-01B 20121750-02B 20121750-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R306825** Instrument ID **Titrator 1** Method: **SW9040C**

LCS Sample ID: **LCS-R306825-R306825** Units: **s.u.** Analysis Date: **12/24/2020 05:06 PM**
Client ID: Run ID: **TITRATOR 1_201224D** SeqNo: **7029039** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.98	0.10	4	0	99.5	92-108	0			

DUP Sample ID: **20121750-01B DUP** Units: **s.u.** Analysis Date: **12/24/2020 05:06 PM**
Client ID: **PZ-1** Run ID: **TITRATOR 1_201224D** SeqNo: **7029041** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	11.16	0.10	0	0	0	0-0	10.96	1.81	5	H
Temperature	20.11	0.10	0	0	0		20.62	2.5		H

The following samples were analyzed in this batch: 20121750-01B 20121750-02B 20121750-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R306910** Instrument ID **Titrator 1** Method: **A2320 B-11**

MBLK Sample ID: **MB-R306910-R306910** Units: **mg/L** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229A** SeqNo: **7033262** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	ND	10								
Alkalinity, Carbonate (as CaCO3)	ND	10								
Alkalinity, Hydroxide (as CaCO3)	ND	10								
Alkalinity, Phenolphthalein (as CaCO3	ND	10								
Alkalinity, Total (as CaCO3)	ND	10								

LCS Sample ID: **LCS-R306910-R306910** Units: **mg/L** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229A** SeqNo: **7033263** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Carbonate (as CaCO3)	923.7	10	925	0	99.9	88-110	0			
Alkalinity, Total (as CaCO3)	996.2	10	1000	0	99.6	89-103	0			

DUP Sample ID: **20121803-01E DUP** Units: **mg/L** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229A** SeqNo: **7033273** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	219.1	10	0	0	0	0-0	224.9	2.6	10	
Alkalinity, Carbonate (as CaCO3)	ND	10	0	0	0	0-0	0	0	10	

DUP Sample ID: **20121990-05A DUP** Units: **mg/L** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229A** SeqNo: **7033276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	66.2	10	0	0	0	0-0	62.95	5.03	10	

DUP Sample ID: **20122120-08C DUP** Units: **mg/L** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229A** SeqNo: **7033278** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	127.7	10	0	0	0	0-0	127.9	0.11	10	

The following samples were analyzed in this batch: 20121750-03B 20121750-05B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R306912** Instrument ID **Titrator 1** Method: **A4500-H B-11**

LCS Sample ID: **LCS-R306912-R306912** Units: **s.u.** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229B** SeqNo: **7033301** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.99	0.10	4	0	99.8	92-108	0			

LCS Sample ID: **LCS-R306912-R306912** Units: **s.u.** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229B** SeqNo: **7033308** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.99	0.10	4	0	99.8	92-108	0			

DUP Sample ID: **20122120-08C DUP** Units: **s.u.** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229B** SeqNo: **7033305** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	8.05	0.10	0	0	0	0-0	7.99	0.748	5	H
Temperature	20.95	0.10	0	0	0	0-0	20.76	0.911		H

DUP Sample ID: **20121990-05A DUP** Units: **s.u.** Analysis Date: **12/29/2020 11:55 AM**
Client ID: Run ID: **TITRATOR 1_201229B** SeqNo: **7033315** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.51	0.10	0	0	0	0-0	7.56	0.664	5	H
Temperature	20.63	0.10	0	0	0		19.96	3.3		H

The following samples were analyzed in this batch: 20121750-03B 20121750-05B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R307142** Instrument ID **IC3** Method: **SW9056A**

MBLK Sample ID: **MBLK-R307142** Units: **mg/L** Analysis Date: **12/30/2020 04:56 PM**
Client ID: Run ID: **IC3_201230A** SeqNo: **7043048** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	ND	0.10								
Sulfate	ND	1.0								

LCS Sample ID: **LCS-R307142** Units: **mg/L** Analysis Date: **12/30/2020 05:15 PM**
Client ID: Run ID: **IC3_201230A** SeqNo: **7043049** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	2.135	0.10	2	0	107	82-116	0			
Sulfate	9.666	1.0	10	0	96.7	90-110	0			

MS Sample ID: **20122223-01D MS** Units: **mg/L** Analysis Date: **12/31/2020**
Client ID: Run ID: **IC3_201230A** SeqNo: **7043070** Prep Date: DF: **40**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	84.26	4.0	80	0	105	82-116	0			
Sulfate	650	40	400	266.2	96	90-110	0			

MSD Sample ID: **20122223-01D MSD** Units: **mg/L** Analysis Date: **12/31/2020 12:19 AM**
Client ID: Run ID: **IC3_201230A** SeqNo: **7043071** Prep Date: DF: **40**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	83.74	4.0	80	0	105	82-116	84.26	0.614	20	
Sulfate	651.6	40	400	266.2	96.4	90-110	650	0.246	20	

The following samples were analyzed in this batch:

20121750-01B	20121750-02B	20121750-03B
20121750-04B	20121750-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R307145** Instrument ID **IC4** Method: **SW9056A**

MBLK Sample ID: **MBLK-R307145** Units: **mg/L** Analysis Date: **12/30/2020 01:43 PM**
Client ID: Run ID: **IC4_201230A** SeqNo: **7043217** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Sulfate	ND	1.0								

LCS Sample ID: **LCS-R307145** Units: **mg/L** Analysis Date: **12/30/2020 02:39 PM**
Client ID: Run ID: **IC4_201230A** SeqNo: **7043218** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.353	1.0	10	0	93.5	88-110	0			
Sulfate	9.647	1.0	10	0	96.5	90-110	0			

MS Sample ID: **20121752-03B MS** Units: **mg/L** Analysis Date: **12/30/2020 07:14 PM**
Client ID: Run ID: **IC4_201230A** SeqNo: **7043233** Prep Date: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	228.2	20	200	42.57	92.8	88-110	0			
Sulfate	1470	20	200	1251	109	90-110	0			EO

MSD Sample ID: **20121752-03B MSD** Units: **mg/L** Analysis Date: **12/30/2020 07:34 PM**
Client ID: Run ID: **IC4_201230A** SeqNo: **7043234** Prep Date: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	229.3	20	200	42.57	93.4	88-110	228.2	0.476	20	
Sulfate	1480	20	200	1251	114	90-110	1470	0.669	20	SEO

The following samples were analyzed in this batch:

20121750-01B	20121750-02B	20121750-03B
20121750-04B	20121750-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 20121750
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R307276** Instrument ID **IC3** Method: **SW9056A**

MBLK Sample ID: **MBLK-R307276** Units: **mg/L** Analysis Date: **12/31/2020 01:42 PM**
Client ID: Run ID: **IC3_201231A** SeqNo: **7047811** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	ND	0.10								
Sulfate	ND	1.0								

LCS Sample ID: **LCS-R307276** Units: **mg/L** Analysis Date: **12/31/2020 02:01 PM**
Client ID: Run ID: **IC3_201231A** SeqNo: **7047812** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	1.976	0.10	2	0	98.8	82-116	0			
Sulfate	9.654	1.0	10	0	96.5	90-110	0			

MS Sample ID: **20122530-06A MS** Units: **mg/L** Analysis Date: **12/31/2020 06:35 PM**
Client ID: Run ID: **IC3_201231A** SeqNo: **7047826** Prep Date: DF: **40**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	87.34	4.0	80	0	109	82-116	0			
Sulfate	424.4	40	400	43.11	95.3	90-110	0			

MSD Sample ID: **20122530-06A MSD** Units: **mg/L** Analysis Date: **12/31/2020 06:54 PM**
Client ID: Run ID: **IC3_201231A** SeqNo: **7047827** Prep Date: DF: **40**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluoride	87.76	4.0	80	0	110	82-116	87.34	0.475	20	
Sulfate	425.5	40	400	43.11	95.6	90-110	424.4	0.255	20	

The following samples were analyzed in this batch: 20121750-02B 20121750-05B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Middletown, PA +1 717 944 5541
Spring City, PA +1 610 948 4903
Salt Lake City, UT +1 801 266 7700
South Charleston, WV +1 304 356 3168
York, PA +1 717 505 5280

Chain of Custody Form

Page ____ of ____

COC ID: 230464

ALS Project Manager:

ALS Work Order #: 20121750 33555

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	DTE - Manoe	A	Metals
Work Order		Project Number	GLP-8014	B	pH, Anions, TDS, Alkalinity
Company Name	Geosyntec Consultants	Bill To Company	Geosyntec Consultants	C	
Send Report To	Michael Coram	Invoice Attn	Michael Coram	D	
Address	2100 Commonwealth Blvd Suite 100	Address	2100 Commonwealth Blvd Suite 100	E F	
City/State/Zip	Ann Arbor, MI 48105	City/State/Zip	Ann Arbor, MI 48105	G	
Phone	(734) 794-1547	Phone	(734) 794-1547	H	
Fax	(734) 332-9063	Fax	(734) 332-9063	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PZ-1	12/14	8:00	GW	2	2	X	X									
2	PZ-2	12/14	9:00	↓	↓	↓	X	X									
3	PZ-3	12/15	8:00				X	X									
4	PZ-4	12/14	10:00				X	X									
5	PZ-5	12/15	10:00				X	X									
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Mike Coram

Shipment Method: FedEx

Required Turnaround Time: (Check Box) [X] Std 10 WK Days [ ] 5 WK Days [ ] Other [ ] 2 WK Days [ ] 24 Hour

Results Due Date:

Relinquished by:		Date: 12/17	Time: 3:00	Received by:	
Relinquished by:	FedEx	Date: 12/18/20	Time: 10:00	Received by (Laboratory):	
Logged by (Laboratory):	MTG	Date: 12/18/20	Time: 13:31	Checked by (Laboratory):	

Notes: Seperate Report

Cooler ID	Cooler Temp.
	5.8°C
	IR
	PH 2.3

QC Package: (Check One Box Below)
- [X] Level II Std QC
- [ ] Level III Std QC/Raw Data
- [ ] Level IV SW846/CLP
- [ ] Other
- [ ] TRRP CheckList
- [ ] TRRP Level IV

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GEOSYNTEC - AA** Date/Time Received: **18-Dec-20 10:00**

Work Order: **20121750** Received by: **MJG**

Checklist completed by Matthew Gaylord (eSignature) 18-Dec-20 (Date) Reviewed by: Chad Whelton (eSignature) 18-Dec-20 (Date)

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.8/5.8C	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	12/18/2020 1:33:02 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Tuesday, January 19, 2021

Michael Coram
Geosyntec Consultants
2100 Commonwealth Blvd. Suite 100
Ann Arbor, MI 48105

Re: ALS Workorder: 2012398
Project Name: DTE - Monroe
Project Number: GLP-8014

Dear Mr. Coram:

Five water samples were received from Geosyntec Consultants, on 12/18/2020. The samples were scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Julie Ellingson
Project Manager

Accreditations: ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

40 CFR Part 136: All analyses for Clean Water Act samples are analyzed using the 40 CFR Part 136 specified method and include all the QC requirements.

2012398

Radium-228:
The samples were analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac, which is the ingrown progeny of ^{228}Ra, according to the current revision of SOP 724.

All acceptance criteria were met.

Radium-226:
The samples were prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2012398
Client Name: Geosyntec Consultants
Client Project Name: DTE - Monroe
Client Project Number: GLP-8014
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
P2-1	2012398-1		WATER	14-Dec-20	8:00
P2-2	2012398-2		WATER	14-Dec-20	9:00
P2-3	2012398-3		WATER	14-Dec-20	8:00
P2-4	2012398-4		WATER	14-Dec-20	10:00
P2-5	2012398-5		WATER	14-Dec-20	10:00

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 230463

2012398

ALS Project Manager:

ALS Work Order #: 33556

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	DTE - Monroe	A	Radium 226 and 228 combined
Work Order		Project Number	GLP - 8014	B	
Company Name	Geosyntec Consultants	Bill To Company	Geosyntec Consultants	C	
Send Report To	Michael Coram	Invoice Attn	Michael Coram	D	
Address	2100 Commonwealth Blvd Suite 100	Address	2100 Commonwealth Blvd Suite 100	E F	
City/State/Zip	Ann Arbor, MI 48105	City/State/Zip	Ann Arbor, MI 48105	G	
Phone	(734) 794-1547	Phone	(734) 794-1547	H	
Fax	(734) 332-8063	Fax	(734) 332-8063	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PZ-1 1	12/14	8:00	GW	2	2	X										
2	PZ-2 2	12/14	9:00	↓	↓	↓	X										
3	PZ-3 3	12/15	8:00				X										
4	PZ-4 4	12/14	10:00				X										
5	PZ-5 5	12/15	10:00				X										
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Mike Coram

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☒ Std 10 WK Days ☐ 5 WK Days ☐ Other ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date: 12/17	Time: 3:00	Received by:	Notes: Seperate Report
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☒ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client Name/ID: Geosyntec MI Workorder No: 2012398

Project Manager: Initials: RGA Date: 12/18/2020

1. Are airbills / shipping documents present and/or removable?	☐ Drop Off	☑ YES	☐ NO			
2. Are custody seals on **shipping** containers intact?	☐ NONE	☑ YES	☐ NO*			
3. Are custody seals on **sample** containers intact?	☑ NONE	☐ YES	☐ NO*			
4. Is there a COC (chain-of-custody) present?		☑ YES	☐ NO*			
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		☑ YES	☐ NO*			
6. Are short-hold samples present?		☐ YES	☑ NO			
7. Are all samples within holding times for the requested analyses?		☑ YES	☐ NO*			
8. Were all sample containers received intact? (not broken or leaking)		☑ YES	☐ NO*			
9. Is there sufficient sample for the requested analyses?		☑ YES	☐ NO*			
10. Are samples in proper containers for requested analyses? (form 250, *Sample Handling Guidelines*)		☑ YES	☐ NO*			
11. Are all aqueous samples preserved correctly, if required?	☐ N/A	☐ YES	☑ NO*			
12. Were unpreserved samples pH checked, if required?	☑ N/A	☐ YES	☐ NO			
13. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm in diameter?	☑ N/A	☐ YES	☐ NO			
14. Were the samples shipped on ice?		☑ YES	☐ NO			
15. Were cooler temperatures measured at 0.1 - 6.0°C? IR gun used*: ☐ #3 ☑ #5	☐ Rad Only	☑ YES	☐ NO			

Cooler #: 1

Temperature (°C): 3.2

# of custody seals on cooler: 1

External mR/hr reading: 12

Background mR/hr reading: 9

Were external mR/hr readings ≤ two times background and within DOT acceptance criteria? (If no, see Form 008) ☐ N/A ☑ YES ☐ NO

* Please provide details below for 'NO' responses in gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

11) Sample 2012398-1-1,2 had a pH of 4, 0.5mL of HNO3 was added to achieve a pH<2

All client bottle ID's vs ALS lab ID's double-checked by: RGA

If applicable, was the client contacted? ☐ YES ☒ N/A Contact Name Date:

Project Manager Signature / Date: 12/21/20

Form 201r30.xls
(06/04/2020)

+IR Gun #3, VWR SN 170647571
+IR Gun #5, VWR SN 192272629

ORIGIN ID:DEOA (248) 390-5748
MIKE CORAM

SUITE 100
2100 COMMONWEALTH BLVD STE 100
ANN ARBOR, MI 48105
UNITED STATES US

SHIP DATE: 17DEC20
ACTWGT: 56.90 LB
CAD: 6987568/SSFO2121
DIMS: 25x14x13 IN

BILL THIRD PARTY

Part # 156287-436 RRDB EXP 11/21

TO ALS FT. COLLINS
ATTN: SAMPLE RECIEVING
225 COMMERCE DR

FORT COLLINS CO 80524

(616) 582-5201 REF:
INV:
PO: DEPT:

12-1
3.2

FedEx Express

FRI - 18 DEC 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7816 0264 9731

DSR
80524
CO-US DEN

NA FTCA

Client:	Geosyntec Consultants	**Date:**	*19-Jan-21*
Project:	GLP-8014 DTE - Monroe	**Work Order:**	2012398
Sample ID:	P2-1	**Lab ID:**	2012398-1
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 08:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1		**SOP 783**			Prep Date: **1/4/2021**	PrepBy: **TRB**
Ra-226	ND (+/- 0.13)	U	0.24	pCi/l	NA	1/12/2021 11:32
Carr: BARIUM	*99.8*		*40-110*	*%REC*	DL = NA	1/12/2021 11:32
Radium-228 Analysis by GFPC		**SOP 724**			Prep Date: **1/11/2021**	PrepBy: **RGS**
COMBINED RADIUM (226+228)	**1.89 (+/- 0)**		**0.85**	**pCi/l**	NA	1/15/2021 07:48
Ra-228	**1.89 (+/- 0.64)**		**0.85**	**pCi/l**	NA	1/15/2021 07:48
Carr: BARIUM	*92.1*		*40-110*	*%REC*	DL = NA	1/15/2021 07:48

Client:	Geosyntec Consultants	**Date:**	*19-Jan-21*
Project:	GLP-8014 DTE - Monroe	**Work Order:**	2012398
Sample ID:	P2-2	**Lab ID:**	2012398-2
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 09:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1		**SOP 783**			Prep Date: **1/4/2021**	PrepBy: **TRB**
Ra-226	ND (+/- 0.19)	U	0.36	pCi/l	NA	1/12/2021 11:32
Carr: BARIUM	*91.2*		*40-110*	*%REC*	DL = NA	1/12/2021 11:32
Radium-228 Analysis by GFPC		**SOP 724**			Prep Date: **1/11/2021**	PrepBy: **RGS**
COMBINED RADIUM (226+228)	ND (+/- 0)	U	0.79	pCi/l	NA	1/15/2021 07:48
Ra-228	ND (+/- 0.42)	U	0.79	pCi/l	NA	1/15/2021 07:48
Carr: BARIUM	*92.8*		*40-110*	*%REC*	DL = NA	1/15/2021 07:48

Client:	Geosyntec Consultants	**Date:**	*19-Jan-21*
Project:	GLP-8014 DTE - Monroe	**Work Order:**	2012398
Sample ID:	P2-3	**Lab ID:**	2012398-3
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 08:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1		**SOP 783**			Prep Date: **1/4/2021**	PrepBy: **TRB**
Ra-226	**0.55 (+/- 0.35)**		**0.37**	**pCi/l**	NA	1/12/2021 11:32
Carr: BARIUM	*92.2*		*40-110*	*%REC*	DL = NA	1/12/2021 11:32
Radium-228 Analysis by GFPC		**SOP 724**			Prep Date: **1/11/2021**	PrepBy: **RGS**
COMBINED RADIUM (226+228)	**1.74 (+/- 0)**		**0.85**	**pCi/l**	NA	1/15/2021 07:48
Ra-228	**1.19 (+/- 0.51)**		**0.85**	**pCi/l**	NA	1/15/2021 07:48
Carr: BARIUM	*92.5*		*40-110*	*%REC*	DL = NA	1/15/2021 07:48

Client:	Geosyntec Consultants	**Date:**	*19-Jan-21*
Project:	GLP-8014 DTE - Monroe	**Work Order:**	2012398
Sample ID:	P2-4	**Lab ID:**	2012398-4
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 10:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1		**SOP 783**			Prep Date: **1/4/2021**	PrepBy: **TRB**
Ra-226	ND (+/- 0.27)	U	0.47	pCi/l	NA	1/12/2021 11:32
Carr: BARIUM	*96*		*40-110*	*%REC*	DL = NA	1/12/2021 11:32
Radium-228 Analysis by GFPC		**SOP 724**			Prep Date: **1/11/2021**	PrepBy: **RGS**
COMBINED RADIUM (226+228)	ND (+/- 0)	U	0.84	pCi/l	NA	1/15/2021 07:48
Ra-228	ND (+/- 0.38)	U	0.84	pCi/l	NA	1/15/2021 07:48
Carr: BARIUM	*91.4*		*40-110*	*%REC*	DL = NA	1/15/2021 07:48

Client:	Geosyntec Consultants	**Date:**	*19-Jan-21*
Project:	GLP-8014 DTE - Monroe	**Work Order:**	2012398
Sample ID:	P2-5	**Lab ID:**	2012398-5
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 10:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Radium-226 by Radon Emanation - Method 903.1		**SOP 783**			Prep Date: **1/4/2021**	PrepBy: **TRB**
Ra-226	ND (+/- 0.25)	U	0.37	pCi/l	NA	1/12/2021 11:54
Carr: BARIUM	*97.7*		*40-110*	*%REC*	DL = NA	1/12/2021 11:54
Radium-228 Analysis by GFPC		**SOP 724**			Prep Date: **1/11/2021**	PrepBy: **RGS**
COMBINED RADIUM (226+228)	ND (+/- 0)	U	0.78	pCi/l	NA	1/15/2021 07:48
Ra-228	ND (+/- 0.34)	U	0.78	pCi/l	NA	1/15/2021 07:48
Carr: BARIUM	*91.4*		*40-110*	*%REC*	DL = NA	1/15/2021 07:48

Client:	Geosyntec Consultants	**Date:**	*19-Jan-21*
Project:	GLP-8014 DTE - Monroe	**Work Order:**	2012398
Sample ID:	P2-5	**Lab ID:**	2012398-5
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 10:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

QC BATCH REPORT

Batch ID: **RE210104-1-3** Instrument ID: **Alpha Scin** Method: **Radium-226 by Radon Emanation**

LCS Sample ID: **RE210104-1** Units: **pCi/l** Analysis Date: **1/12/2021 12:16**

Client ID: Run ID: **RE210104-1A** Prep Date: **1/4/2021** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-226	46 (+/- 12)	0	46.8		98.8	67-120					P
Carr: BARIUM	15230		15490		98.3	40-110					

LCSD Sample ID: **RE210104-1** Units: **pCi/l** Analysis Date: **1/12/2021 12:16**

Client ID: Run ID: **RE210104-1A** Prep Date: **1/4/2021** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-226	40 (+/- 10)	1	46.8		84.5	67-120		46	0.44	2.13	P
Carr: BARIUM	15150		15500		97.8	40-110		15230			

MB Sample ID: **RE210104-1** Units: **pCi/l** Analysis Date: **1/12/2021 12:16**

Client ID: Run ID: **RE210104-1A** Prep Date: **1/4/2021** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.31									U
Carr: BARIUM	15370		15490		99.2	40-110					

The following samples were analyzed in this batch:

2012398-1	2012398-2	2012398-3
2012398-4	2012398-5	

Client: Geosyntec Consultants
Work Order: 2012398
Project: GLP-8014 DTE - Monroe

QC BATCH REPORT

Batch ID: **RA210111-1-5** Instrument ID: **GASPROP** Method: **Radium-228 Analysis by GFPC**

LCS Sample ID: **RA210111-1** Units: **ug** Analysis Date: **1/15/2021 07:48**
Client ID: Run ID: **RA210111-1A** Prep Date: **1/11/2021** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Carr: BARIUM	34290		36030		95.2	40-110					
Ra-228	17.3 (+/- 4.1)	0.7	22.86		75.6	70-130					P

LCSD Sample ID: **RA210111-1** Units: **ug** Analysis Date: **1/15/2021 07:48**
Client ID: Run ID: **RA210111-1A** Prep Date: **1/11/2021** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Carr: BARIUM	33960		36030		94.2	40-110		34290			
Ra-228	22.7 (+/- 5.3)	0.7	22.86		99.3	70-130		17.3	0.81	2.13	P

MB Sample ID: **RA210111-1** Units: **ug** Analysis Date: **1/15/2021 07:48**
Client ID: Run ID: **RA210111-1A** Prep Date: **1/11/2021** DF: **NA**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	DER Ref Value	DER	DER Limit	Qual
Carr: BARIUM	34280		36150		94.8	40-110					
Ra-228	ND	0.77									U

The following samples were analyzed in this batch:

2012398-1	2012398-2	2012398-3
2012398-4	2012398-5	

11-Feb-2021

Michael Coram
Geosyntec Consultants
2100 Commonwealth Blvd.
Suite 100
Ann Arbor, MI 48105

Re: **DTE- Monroe (GLP-8014)** Work Order: **21020221**

Dear Michael,

ALS Environmental received 5 samples on 03-Feb-2021 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 30.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 11-Feb-21

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: **21020221**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
21020221-01	PZ-1	Groundwater		1/28/2021 10:40	2/3/2021 09:00	☐
21020221-02	PZ-2	Groundwater		1/28/2021 11:35	2/3/2021 09:00	☐
21020221-03	PZ-3	Groundwater		1/28/2021 12:20	2/3/2021 09:00	☐
21020221-04	PZ-4	Groundwater		1/28/2021 13:15	2/3/2021 09:00	☐
21020221-05	PZ-5	Groundwater		1/28/2021 14:00	2/3/2021 09:00	☐

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 21020221

Case Narrative

Samples for the above noted Work Order were received on 02/03/2021. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:

Batch 171827, Method SW6020B, Sample 21020221-05C MS/MSD: The MS/MSD recoveries were outside of the control limits for Boron, Calcium, and Molybdenum; however, the results in the parent sample are greater than 4x the spike amount. No qualification is required.

Wet Chemistry:

Batch R309524, Method SW9040C, Sample PZ-1 (21020221-01B): Possible bias due to sodium error at pH > 10. A low sodium electrode is not used in the measurement process.

Batch R309524, Method SW9040C, Sample PZ-1 (21020221-01B): pH is considered a "field test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R309524, Method SW9040C, Sample PZ-2 (21020221-02B): Possible bias due to sodium error at pH > 10. A low sodium electrode is not used in the measurement process.

Batch R309524, Method SW9040C, Sample PZ-2 (21020221-02B): pH is considered a "field test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R309524, Method SW9040C, Sample PZ-3 (21020221-03B): Possible bias due to sodium error at pH > 10. A low sodium electrode is not used in the measurement process.

Batch R309524, Method SW9040C, Sample PZ-3 (21020221-03B): pH is considered a "field

test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R309524, Method SW9040C, Sample PZ-4 (21020221-04B): Possible bias due to sodium error at pH > 10. A low sodium electrode is not used in the measurement process.

Batch R309524, Method SW9040C, Sample PZ-4 (21020221-04B): pH is considered a "field test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R309524, Method SW9040C, Sample PZ-5 (21020221-05B): pH is considered a "field test" and, as such, the recommended sample holding time expired prior to sample receipt.

Batch R309401, Method SW9056A, Sample PZ-5 (21020221-05B): The reporting limit for fluoride is elevated due to dilution for high concentrations of non-target analytes.

ALS Group, USA

Date: 11-Feb-21

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
°C	Degrees Celcius
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: *11-Feb-2021*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 21020221
Sample ID: PZ-1
Lab ID: 21020221-01
Collection Date: 1/28/2021 10:40 AM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 2/8/21 13:14	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/8/2021 01:55 PM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 2/8/21 13:14	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/8/2021 01:57 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 2/9/21 15:19	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 05:37 PM
Arsenic	**0.0090**		**0.0050**	**mg/L**	1	2/9/2021 05:37 PM
Barium	**2.4**		**0.050**	**mg/L**	10	2/10/2021 08:17 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 05:37 PM
Boron	**5.6**		**0.20**	**mg/L**	10	2/10/2021 08:17 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 05:37 PM
Calcium	**120**		**0.50**	**mg/L**	1	2/9/2021 05:37 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 05:37 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 05:37 PM
Iron	**0.54**		**0.080**	**mg/L**	1	2/9/2021 05:37 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 05:37 PM
Lithium	**0.018**		**0.010**	**mg/L**	1	2/9/2021 05:37 PM
Magnesium	**0.22**		**0.20**	**mg/L**	1	2/9/2021 05:37 PM
Manganese	ND		0.0050	mg/L	1	2/9/2021 05:37 PM
Molybdenum	**1.2**		**0.0050**	**mg/L**	1	2/9/2021 05:37 PM
Potassium	**20**		**0.20**	**mg/L**	1	2/9/2021 05:37 PM
Selenium	**0.048**		**0.0050**	**mg/L**	1	2/9/2021 05:37 PM
Sodium	**40**		**0.20**	**mg/L**	1	2/9/2021 05:37 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 05:37 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: FILTER 2/9/21 09:47	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 04:35 PM
Arsenic	**0.0068**		**0.0050**	**mg/L**	1	2/9/2021 04:35 PM
Barium	**2.2**		**0.050**	**mg/L**	10	2/10/2021 07:51 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 04:35 PM
Boron	**5.4**		**0.20**	**mg/L**	10	2/10/2021 07:51 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 04:35 PM
Calcium	**110**		**0.50**	**mg/L**	1	2/9/2021 04:35 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 04:35 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 04:35 PM
Iron	ND		0.080	mg/L	1	2/9/2021 04:35 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 04:35 PM
Lithium	**0.016**		**0.010**	**mg/L**	1	2/9/2021 04:35 PM
Magnesium	ND		0.20	mg/L	1	2/9/2021 04:35 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-1 **Lab ID:** 21020221-01
Collection Date: 1/28/2021 10:40 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Manganese	ND		0.0050	mg/L	1	2/9/2021 04:35 PM
Molybdenum	**1.2**		**0.0050**	**mg/L**	1	2/9/2021 04:35 PM
Potassium	**19**		**0.20**	**mg/L**	1	2/9/2021 04:35 PM
Selenium	**0.045**		**0.0050**	**mg/L**	1	2/9/2021 04:35 PM
Sodium	**38**		**0.20**	**mg/L**	1	2/9/2021 04:35 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 04:35 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	2/9/2021 12:49 PM
Alkalinity, Carbonate (as CaCO3)	**170**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Hydroxide (as CaCO3)	**290**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Phenolphthalein (as CaCO3	**370**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Total (as CaCO3)	**460**		**10**	**mg/L**	1	2/9/2021 12:49 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**48**		**40**	**mg/L**	40	2/5/2021 11:11 PM
Fluoride	**3.6**		**0.10**	**mg/L**	1	2/5/2021 10:13 PM
Sulfate	**11**		**1.0**	**mg/L**	1	2/5/2021 10:13 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.2**	H	**0.10**	**s.u.**	1	2/9/2021 12:49 PM
Temperature	**20.1**	H	**0.10**	**°C**	1	2/9/2021 12:49 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 2/7/21 15:44	Analyst: **ERW**
Total Dissolved Solids	**590**		**100**	**mg/L**	1	2/9/2021 02:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-2 **Lab ID:** 21020221-02
Collection Date: 1/28/2021 11:35 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 2/8/21 13:14	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/8/2021 01:59 PM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 2/8/21 13:14	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/8/2021 02:00 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 2/9/21 15:19	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 05:39 PM
Arsenic	**0.0075**		**0.0050**	**mg/L**	1	2/9/2021 05:39 PM
Barium	**0.66**		**0.0050**	**mg/L**	1	2/9/2021 05:39 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 05:39 PM
Boron	**4.5**		**0.20**	**mg/L**	10	2/10/2021 08:18 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 05:39 PM
Calcium	**40**		**0.50**	**mg/L**	1	2/9/2021 05:39 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 05:39 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 05:39 PM
Iron	**0.87**		**0.080**	**mg/L**	1	2/9/2021 05:39 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 05:39 PM
Lithium	ND		0.010	mg/L	1	2/9/2021 05:39 PM
Magnesium	**0.84**		**0.20**	**mg/L**	1	2/9/2021 05:39 PM
Manganese	**0.0051**		**0.0050**	**mg/L**	1	2/9/2021 05:39 PM
Molybdenum	**1.9**		**0.050**	**mg/L**	10	2/10/2021 08:18 PM
Potassium	**220**		**2.0**	**mg/L**	10	2/10/2021 08:18 PM
Selenium	**0.10**		**0.0050**	**mg/L**	1	2/9/2021 05:39 PM
Sodium	**530**		**2.0**	**mg/L**	10	2/10/2021 08:18 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 05:39 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: FILTER 2/9/21 09:47	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 04:37 PM
Arsenic	**0.0054**		**0.0050**	**mg/L**	1	2/9/2021 04:37 PM
Barium	**0.54**		**0.0050**	**mg/L**	1	2/9/2021 04:37 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 04:37 PM
Boron	**4.4**		**0.20**	**mg/L**	10	2/10/2021 07:52 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 04:37 PM
Calcium	**34**		**0.50**	**mg/L**	1	2/9/2021 04:37 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 04:37 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 04:37 PM
Iron	ND		0.080	mg/L	1	2/9/2021 04:37 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 04:37 PM
Lithium	ND		0.010	mg/L	1	2/9/2021 04:37 PM
Magnesium	ND		0.20	mg/L	1	2/9/2021 04:37 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-2 **Lab ID:** 21020221-02
Collection Date: 1/28/2021 11:35 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Manganese	ND		0.0050	mg/L	1	2/9/2021 04:37 PM
Molybdenum	**2.0**		**0.050**	**mg/L**	10	2/10/2021 07:52 PM
Potassium	**210**		**2.0**	**mg/L**	10	2/10/2021 07:52 PM
Selenium	**0.10**		**0.0050**	**mg/L**	1	2/9/2021 04:37 PM
Sodium	**520**		**2.0**	**mg/L**	10	2/10/2021 07:52 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 04:37 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	2/9/2021 12:49 PM
Alkalinity, Carbonate (as CaCO3)	**260**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Hydroxide (as CaCO3)	**1,100**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Phenolphthalein (as CaCO3	**1,200**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Total (as CaCO3)	**1,400**		**10**	**mg/L**	1	2/9/2021 12:49 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**32**		**16**	**mg/L**	16	2/5/2021 11:49 PM
Fluoride	**23**		**1.6**	**mg/L**	16	2/5/2021 11:49 PM
Sulfate	**67**		**16**	**mg/L**	16	2/5/2021 11:49 PM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.8**	H	**0.10**	**s.u.**	1	2/9/2021 12:49 PM
Temperature	**20.1**	H	**0.10**	**°C**	1	2/9/2021 12:49 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 2/7/21 15:44	Analyst: **ERW**
Total Dissolved Solids	**1,600**		**1,500**	**mg/L**	1	2/9/2021 02:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Feb-2021*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 21020221
Sample ID: PZ-3
Lab ID: 21020221-03
Collection Date: 1/28/2021 12:20 PM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 2/9/21 12:00	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/9/2021 12:13 PM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 2/9/21 12:00	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/9/2021 12:15 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 2/9/21 15:19	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
Arsenic	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
Barium	**1.4**		**0.0050**	**mg/L**	1	2/9/2021 05:41 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 05:41 PM
Boron	**3.1**		**0.20**	**mg/L**	10	2/10/2021 08:20 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 05:41 PM
Calcium	**95**		**0.50**	**mg/L**	1	2/9/2021 05:41 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
Iron	**0.43**		**0.080**	**mg/L**	1	2/9/2021 05:41 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
Lithium	**0.016**		**0.010**	**mg/L**	1	2/9/2021 05:41 PM
Magnesium	**0.20**		**0.20**	**mg/L**	1	2/9/2021 05:41 PM
Manganese	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
Molybdenum	**0.20**		**0.0050**	**mg/L**	1	2/9/2021 05:41 PM
Potassium	**59**		**0.20**	**mg/L**	1	2/9/2021 05:41 PM
Selenium	**0.046**		**0.0050**	**mg/L**	1	2/9/2021 05:41 PM
Sodium	**93**		**0.20**	**mg/L**	1	2/9/2021 05:41 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 05:41 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: FILTER 2/9/21 09:47	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
Arsenic	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
Barium	**1.4**		**0.0050**	**mg/L**	1	2/9/2021 04:39 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 04:39 PM
Boron	**3.2**		**0.20**	**mg/L**	10	2/10/2021 07:54 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 04:39 PM
Calcium	**92**		**0.50**	**mg/L**	1	2/9/2021 04:39 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
Iron	ND		0.080	mg/L	1	2/9/2021 04:39 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
Lithium	**0.016**		**0.010**	**mg/L**	1	2/9/2021 04:39 PM
Magnesium	ND		0.20	mg/L	1	2/9/2021 04:39 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-3 **Lab ID:** 21020221-03
Collection Date: 1/28/2021 12:20 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Manganese	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
Molybdenum	**0.19**		**0.0050**	**mg/L**	1	2/9/2021 04:39 PM
Potassium	**57**		**0.20**	**mg/L**	1	2/9/2021 04:39 PM
Selenium	**0.044**		**0.0050**	**mg/L**	1	2/9/2021 04:39 PM
Sodium	**90**		**0.20**	**mg/L**	1	2/9/2021 04:39 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 04:39 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	2/9/2021 12:49 PM
Alkalinity, Carbonate (as CaCO3)	**150**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Hydroxide (as CaCO3)	**430**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Phenolphthalein (as CaCO3	**500**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Total (as CaCO3)	**580**		**10**	**mg/L**	1	2/9/2021 12:49 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**34**		**16**	**mg/L**	16	2/6/2021 12:28 AM
Fluoride	**1.2**		**0.10**	**mg/L**	1	2/6/2021 12:09 AM
Sulfate	**27**		**16**	**mg/L**	16	2/6/2021 12:28 AM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**11.4**	H	**0.10**	**s.u.**	1	2/9/2021 12:49 PM
Temperature	**20.4**	H	**0.10**	**°C**	1	2/9/2021 12:49 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 2/7/21 15:44	Analyst: **ERW**
Total Dissolved Solids	**660**		**300**	**mg/L**	1	2/9/2021 02:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-4 **Lab ID:** 21020221-04
Collection Date: 1/28/2021 01:15 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 2/9/21 12:00	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/9/2021 12:17 PM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 2/9/21 12:00	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/9/2021 12:18 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 2/9/21 15:19	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 05:42 PM
Arsenic	**0.12**		**0.0050**	**mg/L**	1	2/9/2021 05:42 PM
Barium	**0.12**		**0.0050**	**mg/L**	1	2/9/2021 05:42 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 05:42 PM
Boron	**2.5**		**0.20**	**mg/L**	10	2/10/2021 08:22 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 05:42 PM
Calcium	**57**		**0.50**	**mg/L**	1	2/9/2021 05:42 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 05:42 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 05:42 PM
Iron	**0.69**		**0.080**	**mg/L**	1	2/9/2021 05:42 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 05:42 PM
Lithium	**0.39**		**0.010**	**mg/L**	1	2/9/2021 05:42 PM
Magnesium	**0.26**		**0.20**	**mg/L**	1	2/9/2021 05:42 PM
Manganese	**0.0055**		**0.0050**	**mg/L**	1	2/9/2021 05:42 PM
Molybdenum	**2.0**		**0.050**	**mg/L**	10	2/10/2021 08:22 PM
Potassium	**63**		**0.20**	**mg/L**	1	2/9/2021 05:42 PM
Selenium	**0.028**		**0.0050**	**mg/L**	1	2/9/2021 05:42 PM
Sodium	**49**		**0.20**	**mg/L**	1	2/9/2021 05:42 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 05:42 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: FILTER 2/9/21 09:47	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 04:40 PM
Arsenic	**0.098**		**0.0050**	**mg/L**	1	2/9/2021 04:40 PM
Barium	**0.069**		**0.0050**	**mg/L**	1	2/9/2021 04:40 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 04:40 PM
Boron	**2.4**		**0.20**	**mg/L**	10	2/10/2021 07:56 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 04:40 PM
Calcium	**54**		**0.50**	**mg/L**	1	2/9/2021 04:40 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 04:40 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 04:40 PM
Iron	ND		0.080	mg/L	1	2/9/2021 04:40 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 04:40 PM
Lithium	**0.38**		**0.010**	**mg/L**	1	2/9/2021 04:40 PM
Magnesium	ND		0.20	mg/L	1	2/9/2021 04:40 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-4 **Lab ID:** 21020221-04
Collection Date: 1/28/2021 01:15 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Manganese	ND		0.0050	mg/L	1	2/9/2021 04:40 PM
Molybdenum	**1.9**		**0.050**	**mg/L**	10	2/10/2021 07:56 PM
Potassium	**61**		**0.20**	**mg/L**	1	2/9/2021 04:40 PM
Selenium	**0.028**		**0.0050**	**mg/L**	1	2/9/2021 04:40 PM
Sodium	**48**		**0.20**	**mg/L**	1	2/9/2021 04:40 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 04:40 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	2/9/2021 12:49 PM
Alkalinity, Carbonate (as CaCO3)	**89**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Hydroxide (as CaCO3)	**84**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Phenolphthalein (as CaCO3	**130**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Total (as CaCO3)	**170**		**10**	**mg/L**	1	2/9/2021 12:49 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**37**		**16**	**mg/L**	16	2/6/2021 01:06 AM
Fluoride	**0.83**		**0.10**	**mg/L**	1	2/6/2021 12:47 AM
Sulfate	**140**		**16**	**mg/L**	16	2/6/2021 01:06 AM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**10.8**	H	**0.10**	**s.u.**	1	2/9/2021 12:49 PM
Temperature	**20.1**	H	**0.10**	**°C**	1	2/9/2021 12:49 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 2/7/21 15:44	Analyst: **ERW**
Total Dissolved Solids	**390**		**50**	**mg/L**	1	2/9/2021 02:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Feb-2021*

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014)
Work Order: 21020221
Sample ID: PZ-5
Lab ID: 21020221-05
Collection Date: 1/28/2021 02:00 PM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 2/9/21 12:00	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/9/2021 12:20 PM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 2/9/21 12:00	Analyst: **MAC**
Mercury	ND		0.00020	mg/L	1	2/9/2021 12:22 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3005A 2/9/21 15:19	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 05:44 PM
Arsenic	**0.031**		**0.0050**	**mg/L**	1	2/9/2021 05:44 PM
Barium	**0.11**		**0.0050**	**mg/L**	1	2/9/2021 05:44 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 05:44 PM
Boron	**12**		**0.20**	**mg/L**	10	2/10/2021 08:23 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 05:44 PM
Calcium	**280**		**5.0**	**mg/L**	10	2/10/2021 08:23 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 05:44 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 05:44 PM
Iron	**0.13**		**0.080**	**mg/L**	1	2/9/2021 05:44 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 05:44 PM
Lithium	ND		0.010	mg/L	1	2/9/2021 05:44 PM
Magnesium	**0.70**		**0.20**	**mg/L**	1	2/9/2021 05:44 PM
Manganese	ND		0.0050	mg/L	1	2/9/2021 05:44 PM
Molybdenum	**9.8**		**0.050**	**mg/L**	10	2/10/2021 08:23 PM
Potassium	**3.5**		**0.20**	**mg/L**	1	2/9/2021 05:44 PM
Selenium	**0.011**		**0.0050**	**mg/L**	1	2/9/2021 05:44 PM
Sodium	**1.6**		**0.20**	**mg/L**	1	2/9/2021 05:44 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 05:44 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: FILTER 2/9/21 09:47	Analyst: **STP**
Antimony	ND		0.0050	mg/L	1	2/9/2021 04:42 PM
Arsenic	**0.027**		**0.0050**	**mg/L**	1	2/9/2021 04:42 PM
Barium	**0.097**		**0.0050**	**mg/L**	1	2/9/2021 04:42 PM
Beryllium	ND		0.0020	mg/L	1	2/9/2021 04:42 PM
Boron	**12**		**0.20**	**mg/L**	10	2/10/2021 07:57 PM
Cadmium	ND		0.0020	mg/L	1	2/9/2021 04:42 PM
Calcium	**270**		**5.0**	**mg/L**	10	2/10/2021 07:57 PM
Chromium	ND		0.0050	mg/L	1	2/9/2021 04:42 PM
Cobalt	ND		0.0050	mg/L	1	2/9/2021 04:42 PM
Iron	ND		0.080	mg/L	1	2/9/2021 04:42 PM
Lead	ND		0.0050	mg/L	1	2/9/2021 04:42 PM
Lithium	ND		0.010	mg/L	1	2/9/2021 04:42 PM
Magnesium	**0.64**		**0.20**	**mg/L**	1	2/9/2021 04:42 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Geosyntec Consultants
Project: DTE- Monroe (GLP-8014) **Work Order:** 21020221
Sample ID: PZ-5 **Lab ID:** 21020221-05
Collection Date: 1/28/2021 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Manganese	ND		0.0050	mg/L	1	2/9/2021 04:42 PM
Molybdenum	**9.4**		**0.050**	**mg/L**	10	2/10/2021 07:57 PM
Potassium	**3.3**		**0.20**	**mg/L**	1	2/9/2021 04:42 PM
Selenium	**0.0083**		**0.0050**	**mg/L**	1	2/9/2021 04:42 PM
Sodium	**1.7**		**0.20**	**mg/L**	1	2/9/2021 04:42 PM
Thallium	ND		0.0050	mg/L	1	2/9/2021 04:42 PM
ALKALINITY			**A2320 B-11**			Analyst: **QTN**
Alkalinity, Bicarbonate (as CaCO3)	ND		10	mg/L	1	2/9/2021 12:49 PM
Alkalinity, Carbonate (as CaCO3)	**83**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Hydroxide (as CaCO3)	**43**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Phenolphthalein (as CaCO3	**85**		**10**	**mg/L**	1	2/9/2021 12:49 PM
Alkalinity, Total (as CaCO3)	**130**		**10**	**mg/L**	1	2/9/2021 12:49 PM
ANIONS BY ION CHROMATOGRAPHY			**SW9056A**			Analyst: **JDR**
Chloride	**26**		**4.0**	**mg/L**	4	2/6/2021 01:26 AM
Fluoride	ND		0.40	mg/L	4	2/6/2021 01:26 AM
Sulfate	**530**		**50**	**mg/L**	50	2/6/2021 01:45 AM
PH (LABORATORY)			**SW9040C**			Analyst: **QTN**
pH (laboratory)	**9.73**	H	**0.10**	**s.u.**	1	2/9/2021 12:49 PM
Temperature	**19.2**	H	**0.10**	**°C**	1	2/9/2021 12:49 PM
TOTAL DISSOLVED SOLIDS			**A2540 C-11**		Prep: FILTER 2/7/21 15:44	Analyst: **ERW**
Total Dissolved Solids	**880**		**100**	**mg/L**	1	2/9/2021 02:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 11-Feb-21

Client: Geosyntec Consultants

QC BATCH REPORT

Work Order: 21020221

Project: DTE- Monroe (GLP-8014)

Batch ID: **171771** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-171771-171771** Units: **mg/L** Analysis Date: **2/8/2021 01:27 PM**

Client ID: Run ID: **HG4_210208A** SeqNo: **7127171** Prep Date: **2/8/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-171771-171771** Units: **mg/L** Analysis Date: **2/8/2021 02:50 PM**

Client ID: Run ID: **HG4_210208A** SeqNo: **7127218** Prep Date: **2/8/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001785	0.00020	0.002	0	89.2	80-120	0			

MS Sample ID: **21020251-02AMS** Units: **mg/L** Analysis Date: **2/8/2021 02:11 PM**

Client ID: Run ID: **HG4_210208A** SeqNo: **7127196** Prep Date: **2/8/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.01995	0.0020	0.02	0.00075	96	75-125	0			

MSD Sample ID: **21020251-02AMSD** Units: **mg/L** Analysis Date: **2/8/2021 02:13 PM**

Client ID: Run ID: **HG4_210208A** SeqNo: **7127197** Prep Date: **2/8/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0198	0.0020	0.02	0.00075	95.2	75-125	0.01995	0.755	20	

The following samples were analyzed in this batch:

21020221-01A 21020221-01C 21020221-02A
21020221-02C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171829** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-171829-171829** Units: **mg/L** Analysis Date: **2/9/2021 12:10 PM**
Client ID: Run ID: **HG4_210209A** SeqNo: **7130605** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-171829-171829** Units: **mg/L** Analysis Date: **2/9/2021 12:11 PM**
Client ID: Run ID: **HG4_210209A** SeqNo: **7130606** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00201	0.00020	0.002	0	100	80-120	0			

MS Sample ID: **21020388-02AMS** Units: **mg/L** Analysis Date: **2/9/2021 12:45 PM**
Client ID: Run ID: **HG4_210209A** SeqNo: **7130625** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.01935	0.0020	0.02	-0.000045	97	75-125	0			

MSD Sample ID: **21020388-02AMSD** Units: **mg/L** Analysis Date: **2/9/2021 12:47 PM**
Client ID: Run ID: **HG4_210209A** SeqNo: **7130626** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0198	0.0020	0.02	-0.000045	99.2	75-125	0.01935	2.3	20	

The following samples were analyzed in this batch:

21020221-03A	21020221-03C	21020221-04A
21020221-04C	21020221-05A	21020221-05C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171827** Instrument ID **ICPMS3** Method: **SW6020B** **(Dissolve)**

MBLK Sample ID: **MBLK-171827-171827** Units: **mg/L** Analysis Date: **2/9/2021 04:21 PM**
Client ID: Run ID: **ICPMS3_210209A** SeqNo: **7131167** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Iron	ND	0.080								
Lead	ND	0.0050								
Lithium	ND	0.010								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Sodium	ND	0.20								
Thallium	ND	0.0050								

MBLK Sample ID: **MBLK-171827-171827** Units: **mg/L** Analysis Date: **2/10/2021 07:33 PM**
Client ID: Run ID: **ICPMS3_210210B** SeqNo: **7133898** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	ND	0.020								

LCS Sample ID: **LCS-171827-171827** Units: **mg/L** Analysis Date: **2/9/2021 04:22 PM**
Client ID: Run ID: **ICPMS3_210209A** SeqNo: **7131168** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0857	0.0050	0.1	0	85.7	80-120	0			
Arsenic	0.08929	0.0050	0.1	0	89.3	80-120	0			
Chromium	0.08766	0.0050	0.1	0	87.7	80-120	0			
Cobalt	0.0894	0.0050	0.1	0	89.4	80-120	0			
Iron	9.019	0.080	10	0	90.2	80-120	0			
Magnesium	9.509	0.20	10	0	95.1	80-120	0			
Potassium	9.46	0.20	10	0	94.6	80-120	0			
Selenium	0.09002	0.0050	0.1	0	90	80-120	0			
Sodium	9.507	0.20	10	0	95.1	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171827** Instrument ID **ICPMS3** Method: **SW6020B** **(Dissolve)**

LCS Sample ID: **LCS-171827-171827** Units: **mg/L** Analysis Date: **2/10/2021 07:34 PM**
Client ID: Run ID: **ICPMS3_210210B** SeqNo: **7133899** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.09386	0.0050	0.1	0	93.9	80-120	0			
Beryllium	0.09556	0.0020	0.1	0	95.6	80-120	0			
Boron	0.451	0.020	0.5	0	90.2	80-120	0			
Cadmium	0.1006	0.0020	0.1	0	101	80-120	0			
Calcium	9.733	0.50	10	0	97.3	80-120	0			
Lead	0.0935	0.0050	0.1	0	93.5	80-120	0			
Lithium	0.09548	0.010	0.1	0	95.5	80-120	0			
Manganese	0.09292	0.0050	0.1	0	92.9	80-120	0			
Molybdenum	0.09283	0.0050	0.1	0	92.8	80-120	0			
Thallium	0.09105	0.0050	0.1	0	91	80-120	0			

MS Sample ID: **21020221-05CMS** Units: **mg/L** Analysis Date: **2/9/2021 04:43 PM**
Client ID: **PZ-5** Run ID: **ICPMS3_210209A** SeqNo: **7131181** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1073	0.0050	0.1	0.004695	103	75-125	0			
Arsenic	0.1256	0.0050	0.1	0.02734	98.3	75-125	0			
Barium	0.1975	0.0050	0.1	0.09727	100	75-125	0			
Beryllium	0.102	0.0020	0.1	0.000004	102	75-125	0			
Cadmium	0.1033	0.0020	0.1	0.000858	102	75-125	0			
Chromium	0.09276	0.0050	0.1	-0.000101	92.9	75-125	0			
Cobalt	0.0935	0.0050	0.1	0.000074	93.4	75-125	0			
Iron	9.544	0.080	10	-0.000258	95.4	75-125	0			
Lead	0.09906	0.0050	0.1	-0.000002	99.1	75-125	0			
Lithium	0.1067	0.010	0.1	0.005053	102	75-125	0			
Magnesium	10.65	0.20	10	0.6432	100	75-125	0			
Manganese	0.09753	0.0050	0.1	0.000013	97.5	75-125	0			
Potassium	13.46	0.20	10	3.327	101	75-125	0			
Selenium	0.1159	0.0050	0.1	0.008307	108	75-125	0			
Sodium	11.55	0.20	10	1.711	98.4	75-125	0			
Thallium	0.09602	0.0050	0.1	0.00022	95.8	75-125	0			

MS Sample ID: **21020221-05CMS** Units: **mg/L** Analysis Date: **2/10/2021 07:59 PM**
Client ID: **PZ-5** Run ID: **ICPMS3_210210B** SeqNo: **7133914** Prep Date: **2/9/2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	11.73	0.20	0.5	11.63	19.6	75-125	0			SO
Calcium	259.6	5.0	10	267.5	-78.8	75-125	0			SO
Molybdenum	8.941	0.050	0.1	9.43	-489	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171827** Instrument ID **ICPMS3** Method: **SW6020B** **(Dissolve)**

MSD Sample ID: **21020221-05CMSD** Units: **mg/L** Analysis Date: **2/9/2021 04:45 PM**
Client ID: **PZ-5** Run ID: **ICPMS3_210209A** SeqNo: **7131182** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1081	0.0050	0.1	0.004695	103	75-125	0.1073	0.729	20	
Arsenic	0.1257	0.0050	0.1	0.02734	98.4	75-125	0.1256	0.0827	20	
Barium	0.1991	0.0050	0.1	0.09727	102	75-125	0.1975	0.83	20	
Beryllium	0.1025	0.0020	0.1	0.000004	102	75-125	0.102	0.478	20	
Cadmium	0.1032	0.0020	0.1	0.000858	102	75-125	0.1033	0.0814	20	
Calcium	253.8	0.50	10	245.8	80.1	75-125	251.3	0.993	20	EO
Chromium	0.09319	0.0050	0.1	-0.000101	93.3	75-125	0.09276	0.457	20	
Cobalt	0.093	0.0050	0.1	0.000074	92.9	75-125	0.0935	0.533	20	
Iron	9.524	0.080	10	-0.000258	95.2	75-125	9.544	0.211	20	
Lead	0.09986	0.0050	0.1	-0.000002	99.9	75-125	0.09906	0.802	20	
Lithium	0.1074	0.010	0.1	0.005053	102	75-125	0.1067	0.669	20	
Magnesium	10.69	0.20	10	0.6432	100	75-125	10.65	0.396	20	
Manganese	0.09729	0.0050	0.1	0.000013	97.3	75-125	0.09753	0.248	20	
Potassium	13.49	0.20	10	3.327	102	75-125	13.46	0.238	20	
Selenium	0.1103	0.0050	0.1	0.008307	102	75-125	0.1159	5	20	
Sodium	11.5	0.20	10	1.711	97.9	75-125	11.55	0.459	20	
Thallium	0.09707	0.0050	0.1	0.00022	96.9	75-125	0.09602	1.09	20	

MSD Sample ID: **21020221-05CMSD** Units: **mg/L** Analysis Date: **2/10/2021 08:00 PM**
Client ID: **PZ-5** Run ID: **ICPMS3_210210B** SeqNo: **7133915** Prep Date: **2/9/2021** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	11.81	0.20	0.5	11.63	35.2	75-125	11.73	0.664	20	SO
Calcium	266.8	5.0	10	267.5	-6.95	75-125	259.6	2.73	20	SO
Molybdenum	9.188	0.050	0.1	9.43	-242	75-125	8.941	2.73	20	SO

The following samples were analyzed in this batch:

21020221-01C	21020221-02C	21020221-03C
21020221-04C	21020221-05C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171837** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-171837-171837** Units: **mg/L** Analysis Date: **2/9/2021 05:20 PM**
Client ID: Run ID: **ICPMS3_210209A** SeqNo: **7131221** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Iron	ND	0.080								
Lead	ND	0.0050								
Lithium	ND	0.010								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Sodium	ND	0.20								
Thallium	ND	0.0050								

MBLK Sample ID: **MBLK-171837-171837** Units: **mg/L** Analysis Date: **2/10/2021 08:10 PM**
Client ID: Run ID: **ICPMS3_210210B** SeqNo: **7133921** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	ND	0.020								
Molybdenum	ND	0.0050								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171837** Instrument ID **ICPMS3** Method: **SW6020B**

LCS	Sample ID: **LCS-171837-171837**				Units: **mg/L**			Analysis Date: **2/9/2021 05:21 PM**			
Client ID:		Run ID: **ICPMS3_210209A**			SeqNo: **7131223**			Prep Date: **2/9/2021**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.0943	0.0050	0.1	0	94.3	80-120	0			
Arsenic	0.1004	0.0050	0.1	0	100	80-120	0			
Barium	0.09716	0.0050	0.1	0	97.2	80-120	0			
Beryllium	0.09892	0.0020	0.1	0	98.9	80-120	0			
Boron	0.4506	0.020	0.5	0	90.1	80-120	0			
Cadmium	0.1018	0.0020	0.1	0	102	80-120	0			
Calcium	9.911	0.50	10	0	99.1	80-120	0			
Chromium	0.1011	0.0050	0.1	0	101	80-120	0			
Cobalt	0.1005	0.0050	0.1	0	101	80-120	0			
Iron	10	0.080	10	0	100	80-120	0			
Lead	0.09736	0.0050	0.1	0	97.4	80-120	0			
Lithium	0.09537	0.010	0.1	0	95.4	80-120	0			
Magnesium	10.02	0.20	10	0	100	80-120	0			
Manganese	0.09892	0.0050	0.1	0	98.9	80-120	0			
Molybdenum	0.09561	0.0050	0.1	0	95.6	80-120	0			
Potassium	9.937	0.20	10	0	99.4	80-120	0			
Selenium	0.101	0.0050	0.1	0	101	80-120	0			
Sodium	9.964	0.20	10	0	99.6	80-120	0			
Thallium	0.09287	0.0050	0.1	0	92.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171837** Instrument ID **ICPMS3** Method: **SW6020B**

MS Sample ID: **21020218-01AMS** Units: **mg/L** Analysis Date: **2/9/2021 05:28 PM**
Client ID: Run ID: **ICPMS3_210209A** SeqNo: **7131231** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09531	0.0050	0.1	0.000535	94.8	75-125	0			
Arsenic	0.106	0.0050	0.1	0.004913	101	75-125	0			
Barium	0.5807	0.0050	0.1	0.4786	102	75-125	0			O
Beryllium	0.1008	0.0020	0.1	0.000005	101	75-125	0			
Boron	0.6679	0.020	0.5	0.1696	99.7	75-125	0			
Cadmium	0.09992	0.0020	0.1	0.000028	99.9	75-125	0			
Calcium	50.88	0.50	10	41.71	91.7	75-125	0			O
Chromium	0.1048	0.0050	0.1	0.004783	100	75-125	0			
Cobalt	0.1001	0.0050	0.1	0.000044	100	75-125	0			
Iron	9.992	0.080	10	0.03947	99.5	75-125	0			
Lead	0.09806	0.0050	0.1	0.000997	97.1	75-125	0			
Lithium	0.1171	0.010	0.1	0.0174	99.7	75-125	0			
Magnesium	17.93	0.20	10	8.149	97.8	75-125	0			
Manganese	0.09893	0.0050	0.1	0.00235	96.6	75-125	0			
Molybdenum	0.1154	0.0050	0.1	0.01656	98.8	75-125	0			
Potassium	12.76	0.20	10	3.009	97.6	75-125	0			
Selenium	0.09775	0.0050	0.1	0.000816	96.9	75-125	0			
Sodium	37.41	0.20	10	28.03	93.8	75-125	0			
Thallium	0.0931	0.0050	0.1	0.000099	93	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171837** Instrument ID **ICPMS3** Method: **SW6020B**

MSD Sample ID: **21020218-01AMSD** Units: **mg/L** Analysis Date: **2/9/2021 05:29 PM**
Client ID: Run ID: **ICPMS3_210209A** SeqNo: **7131233** Prep Date: **2/9/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09562	0.0050	0.1	0.000535	95.1	75-125	0.09531	0.325	20	
Arsenic	0.1066	0.0050	0.1	0.004913	102	75-125	0.106	0.583	20	
Barium	0.5787	0.0050	0.1	0.4786	100	75-125	0.5807	0.339	20	O
Beryllium	0.09986	0.0020	0.1	0.000005	99.9	75-125	0.1008	0.892	20	
Boron	0.6702	0.020	0.5	0.1696	100	75-125	0.6679	0.348	20	
Cadmium	0.1001	0.0020	0.1	0.000028	100	75-125	0.09992	0.211	20	
Calcium	51.01	0.50	10	41.71	93	75-125	50.88	0.261	20	O
Chromium	0.1046	0.0050	0.1	0.004783	99.8	75-125	0.1048	0.244	20	
Cobalt	0.1003	0.0050	0.1	0.000044	100	75-125	0.1001	0.188	20	
Iron	10.02	0.080	10	0.03947	99.8	75-125	9.992	0.277	20	
Lead	0.09843	0.0050	0.1	0.000997	97.4	75-125	0.09806	0.379	20	
Lithium	0.1162	0.010	0.1	0.0174	98.8	75-125	0.1171	0.735	20	
Magnesium	17.71	0.20	10	8.149	95.7	75-125	17.93	1.2	20	
Manganese	0.09947	0.0050	0.1	0.00235	97.1	75-125	0.09893	0.552	20	
Molybdenum	0.1174	0.0050	0.1	0.01656	101	75-125	0.1154	1.73	20	
Potassium	12.83	0.20	10	3.009	98.2	75-125	12.76	0.546	20	
Selenium	0.09486	0.0050	0.1	0.000816	94	75-125	0.09775	2.99	20	
Sodium	37.4	0.20	10	28.03	93.8	75-125	37.41	0.0176	20	
Thallium	0.09346	0.0050	0.1	0.000099	93.4	75-125	0.0931	0.388	20	

The following samples were analyzed in this batch:

21020221-01A	21020221-02A	21020221-03A
21020221-04A	21020221-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **171610** Instrument ID **TDS** Method: **A2540 C-11**

MBLK Sample ID: **MBLK-171610-171610** Units: **mg/L** Analysis Date: **2/9/2021 02:45 PM**
Client ID: Run ID: **TDS_210209A** SeqNo: **7130209** Prep Date: **2/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	ND	30								

LCS Sample ID: **LCS-171610-171610** Units: **mg/L** Analysis Date: **2/9/2021 02:45 PM**
Client ID: Run ID: **TDS_210209A** SeqNo: **7130208** Prep Date: **2/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	464	30	495	0	93.7	85-109	0			

DUP Sample ID: **21020092-13A DUP** Units: **mg/L** Analysis Date: **2/9/2021 02:45 PM**
Client ID: Run ID: **TDS_210209A** SeqNo: **7130187** Prep Date: **2/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	1520	300	0	0	0	0-0	1500	1.32	10	

DUP Sample ID: **21020221-01B DUP** Units: **mg/L** Analysis Date: **2/9/2021 02:45 PM**
Client ID: **PZ-1** Run ID: **TDS_210209A** SeqNo: **7130203** Prep Date: **2/7/2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids	600	100	0	0	0	0-0	593.3	1.12	10	H

The following samples were analyzed in this batch:

21020221-01B	21020221-02B	21020221-03B
21020221-04B	21020221-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R309401** Instrument ID **IC3** Method: **SW9056A**

MBLK Sample ID: **MBLK-R309401** Units: **mg/L** Analysis Date: **2/5/2021 02:50 PM**
Client ID: Run ID: **IC3_210205A** SeqNo: **7124881** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	1.0								
Fluoride	ND	0.10								
Sulfate	ND	1.0								

LCS Sample ID: **LCS-R309401** Units: **mg/L** Analysis Date: **2/5/2021 03:10 PM**
Client ID: Run ID: **IC3_210205A** SeqNo: **7124882** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.483	1.0	10	0	94.8	88-110	0			
Fluoride	1.989	0.10	2	0	99.5	82-116	0			
Sulfate	9.754	1.0	10	0	97.5	90-110	0			

MS Sample ID: **21020375-03A MS** Units: **mg/L** Analysis Date: **2/5/2021 05:24 PM**
Client ID: Run ID: **IC3_210205A** SeqNo: **7124889** Prep Date: DF: **40**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	761.2	40	400	366.7	98.6	88-110	0			
Sulfate	399	40	400	22.67	94.1	90-110	0			

MSD Sample ID: **21020375-03A MSD** Units: **mg/L** Analysis Date: **2/5/2021 05:44 PM**
Client ID: Run ID: **IC3_210205A** SeqNo: **7124890** Prep Date: DF: **40**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	761.5	40	400	366.7	98.7	88-110	761.2	0.0436	20	
Sulfate	397.8	40	400	22.67	93.8	90-110	399	0.305	20	

The following samples were analyzed in this batch:

21020221-01B	21020221-02B	21020221-03B
21020221-04B	21020221-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R309522** Instrument ID **Titrator 1** Method: **A2320 B-11**

MBLK Sample ID: **MB-R309522-R309522** Units: **mg/L** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209A** SeqNo: **7129322** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	ND	10								
Alkalinity, Carbonate (as CaCO3)	ND	10								
Alkalinity, Hydroxide (as CaCO3)	ND	10								
Alkalinity, Phenolphthalein (as CaCO3	ND	10								
Alkalinity, Total (as CaCO3)	ND	10								

LCS Sample ID: **LCS-R309522-R309522** Units: **mg/L** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209A** SeqNo: **7129323** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Carbonate (as CaCO3)	894.2	10	925	0	96.7	88-110	0			
Alkalinity, Total (as CaCO3)	965.4	10	1000	0	96.5	89-103	0			

DUP Sample ID: **21020218-01B DUP** Units: **mg/L** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209A** SeqNo: **7129326** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	83.06	10	0	0	0	0-0	87.95	5.72	10	
Alkalinity, Carbonate (as CaCO3)	ND	10	0	0	0	0-0	0	0	10	
Alkalinity, Hydroxide (as CaCO3)	ND	10	0	0	0	0-0	0	0	10	
Alkalinity, Phenolphthalein (as CaCO3	ND	10	0	0	0	0-0	0	0	10	
Alkalinity, Total (as CaCO3)	83.06	10	0	0	0	0-0	87.95	5.72	10	

DUP Sample ID: **21020353-01H DUP** Units: **mg/L** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209A** SeqNo: **7129337** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (as CaCO3)	767.6	10	0	0	0	0-0	778.2	1.37	10	

The following samples were analyzed in this batch:

21020221-01B	21020221-02B	21020221-03B
21020221-04B	21020221-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Geosyntec Consultants
Work Order: 21020221
Project: DTE- Monroe (GLP-8014)

QC BATCH REPORT

Batch ID: **R309524** Instrument ID **Titrator 1** Method: **A4500-H B-11**

LCS Sample ID: **LCS-R309524-R309524** Units: **s.u.** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209B** SeqNo: **7129346** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.99	0.10	4	0	99.8	92-108	0			

LCS Sample ID: **LCS-R309524-R309524** Units: **s.u.** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209B** SeqNo: **7129349** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	3.99	0.10	4	0	99.8	92-108	0			

DUP Sample ID: **21020240-01A DUP** Units: **s.u.** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209B** SeqNo: **7129348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.63	0.10	0	0	0	0-0	7.87	3.1	5	H
Temperature	20.95	0.10	0	0	0	0-0	21.12	0.808		H

DUP Sample ID: **21020218-01B DUP** Units: **s.u.** Analysis Date: **2/9/2021 12:49 PM**
Client ID: Run ID: **TITRATOR 1_210209B** SeqNo: **7129351** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.85	0.10	0	0	0	0-0	7.87	0.254	5	H
Temperature	20.03	0.10	0	0	0		20.3	1.34		H

The following samples were analyzed in this batch:

21020221-01B	21020221-02B	21020221-03B
21020221-04B	21020221-05B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 235262

210202221

ALS Project Manager: | ALS Work Order #: 34024

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	DTE Monroe	A	pH, TDS, Alkalinity
Work Order		Project Number	GLP-8014	B	Anions - Cl, Fl, SO4
Company Name	Geosyntec Consultants	Bill To Company	Geosyntec Consultants	C	Metals (Total)
Send Report To	Michael Coram	Invoice Attn	Michael Coram	D	Metals (Dissolved) Lab Filtered
Address	2100 Commonwealth Blvd Suite 100	Address	2100 Commonwealth Blvd Suite 100	E	
				F	
City/State/Zip	Ann Arbor, MI 48105	City/State/Zip	Ann Arbor, MI 48105	G	
Phone	(734) 794-1547	Phone	(734) 794-1547	H	
Fax	(734) 332-8063	Fax	(734) 332-8063	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	PZ-1	1/28	10:40	GW	2	3	X	X	X	X							
2	PZ-2	↓	11:35	↓	↓	↓	X	X	X	X							
3	PZ-3		12:20				X	X	X	X							
4	PZ-4		13:15				X	X	X	X							
5	PZ-5		14:00				X	X	X	X							
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Mike Coram

Shipment Method: Fed Ex

Required Turnaround Time: (Check Box) [X] Std 10 WK Days [ ] 5 WK Days [ ] Other ___ [ ] 2 WK Days [ ] 24 Hour

Results Due Date:

	Date	Time		
Relinquished by:	2/1	1400	Received by:	
Relinquished by:	2/3/21	9:00	Received by (Laboratory):	
Logged by (Laboratory): MTG	2/3/21	17:35	Checked by (Laboratory):	

Notes: Diss Metals → Lab Filter

Cooler ID	Cooler Temp.
	0.8C
	2.1
	2.4

QC Package: (Check One Box Below)
[ ] Level II Std QC [ ] TRRP CheckList
[ ] Level III Std QC/Raw Data [ ] TRRP Level IV
[ ] Level IV SW846/CLP
[ ] Other ___

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **GEOSYNTEC - AA** Date/Time Received: **03-Feb-21 09:00**

Work Order: **21020221** Received by: **MJG**

Checklist completed by Matthew Gaylord (eSignature) 03-Feb-21 (Date) Reviewed by: Chad Whelton (eSignature) 03-Feb-21 (Date)

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.8/0.8C	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	2/3/2021 2:35:55 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Eurofins Environmental Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 2/27/2023 4:17:01 PM Revision 1

JOB DESCRIPTION

CCR DTE Monroe Fly Ash Basin

JOB NUMBER

240-178047-1

Eurofins Canton
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

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

Generated
2/27/2023 4:17:01 PM
Revision 1

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

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 240-178047-1
Project/Site: CCR DTE Monroe Fly Ash Basin

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
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

Job ID: 240-178047-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-178047-1

Comments
No additional comments.

Revision
The report being provided is a revision of the original report sent on 12/29/2022. The report (revision 1) is being revised due to: Client would like strontium added to samples 8 through 15..

Receipt
The samples were received on 12/15/2022 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 1.5º C and 2.0º C.

Receipt Exceptions
Sample MW-16-07 was not received.

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

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

Method Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	EET CAN
6020	Metals (ICP/MS)	SW846	EET CAN
2320B-1997	Alkalinity, Total	SM	EET CAN
9056A	Anions, Ion Chromatography	SW846	EET CAN
9060A	Organic Carbon, Total (TOC)	SW846	EET CAN
3005A	Preparation, Total Recoverable or Dissolved Metals	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 Monroe Fly Ash Basin

Job ID: 240-178047-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-178047-1	MW-16-01	Water	12/12/22 11:27	12/15/22 08:00
240-178047-2	MW-16-02	Water	12/12/22 14:13	12/15/22 08:00
240-178047-3	MW-16-03	Water	12/12/22 10:20	12/15/22 08:00
240-178047-4	MW-16-04	Water	12/12/22 09:04	12/15/22 08:00
240-178047-5	MW-16-05	Water	12/12/22 09:42	12/15/22 08:00
240-178047-6	MW-16-06	Water	12/12/22 13:28	12/15/22 08:00
240-178047-8	PZ-1	Water	12/13/22 10:16	12/15/22 08:00
240-178047-9	PZ-2	Water	12/12/22 15:38	12/15/22 08:00
240-178047-10	PZ-3	Water	12/13/22 11:18	12/15/22 08:00
240-178047-11	PZ-4	Water	12/13/22 09:13	12/15/22 08:00
240-178047-12	PZ-5	Water	12/13/22 13:13	12/15/22 08:00
240-178047-13	P-01	Water	12/13/22 14:51	12/15/22 08:00
240-178047-14	LE-01	Water	12/13/22 15:56	12/15/22 08:00
240-178047-15	SW-001	Water	12/13/22 12:19	12/15/22 08:00
240-178047-16	DUP-01	Water	12/12/22 00:00	12/15/22 08:00

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-01 — Lab Sample ID: 240-178047-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	240		100	100	ug/L	1		6010B	Total Recoverable
Barium	8.7		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	360000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	64		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	140000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	3300		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	6100		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	210		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	210		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	10		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.8		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.3		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-02 — Lab Sample ID: 240-178047-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	370		100	100	ug/L	1		6010B	Total Recoverable
Barium	6.2		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	390000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	95		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	150000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	3900		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	10000		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	13		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1500		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.1		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.0		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.0		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.1		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.1		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-03 — Lab Sample ID: 240-178047-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	430		100	100	ug/L	1		6010B	Total Recoverable
Barium	6.2		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	400000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	100		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	150000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	3900		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	12000		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	18		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1500		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.1		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.2		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-04 — Lab Sample ID: 240-178047-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	150		100	100	ug/L	1		6010B	Total Recoverable
Barium	10		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	500000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	18		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	42000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	2100		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	11000		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	230		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	230		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	35		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.0		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1300		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.6		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-05 — Lab Sample ID: 240-178047-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	190		100	100	ug/L	1		6010B	Total Recoverable
Barium	5.4		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	380000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	39		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	130000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	2900		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	7600		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	11		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.3		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: MW-16-06 — Lab Sample ID: 240-178047-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	310		100	100	ug/L	1		6010B	Total Recoverable
Barium	11		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	360000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	78		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	140000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	3800		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	10000		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	190		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	11		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.1		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.2		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-1 — Lab Sample ID: 240-178047-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	8100		100	100	ug/L	1		6010B	Total Recoverable
Barium	2300		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	120000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	16		8.0	8.0	ug/L	1		6020	Total Recoverable
Molybdenum	1400		5.0	5.0	ug/L	1		6020	Total Recoverable
Potassium	23000		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	52000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	12000		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	260		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	100		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	45		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.48		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	25		1.0	1.0	mg/L	1		9056A	Total/NA
Total Organic Carbon	11		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	11		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	11		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	11		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	11		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: PZ-2 — Lab Sample ID: 240-178047-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	5900		100	100	ug/L	1		6010B	Total Recoverable
Barium	600		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	29000		1000	1000	ug/L	1		6020	Total Recoverable
Molybdenum	2100		50	50	ug/L	10		6020	Total Recoverable
Potassium	230000		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	560000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	3700		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	1400		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	610		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	33		2.0	2.0	mg/L	2		9056A	Total/NA
Fluoride	3.7		0.10	0.10	mg/L	2		9056A	Total/NA
Sulfate	84		2.0	2.0	mg/L	2		9056A	Total/NA
Total Organic Carbon	96		5.0	1.7	mg/L	5		9060A	Total/NA
TOC Result 1	95		5.0	1.7	mg/L	5		9060A	Total/NA
TOC Result 2	96		5.0	1.7	mg/L	5		9060A	Total/NA
TOC Result 3	96		5.0	1.7	mg/L	5		9060A	Total/NA
TOC Result 4	96		5.0	1.7	mg/L	5		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-3 — Lab Sample ID: 240-178047-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	3900		100	100	ug/L	1		6010B	Total Recoverable
Barium	1800		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	100000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	38		8.0	8.0	ug/L	1		6020	Total Recoverable
Molybdenum	170		5.0	5.0	ug/L	1		6020	Total Recoverable
Potassium	60000		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	94000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	14000		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	320		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	80		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	33		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.84		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	14		1.0	1.0	mg/L	1		9056A	Total/NA
Total Organic Carbon	0.73	J	1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	0.73	J	1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	0.73	J	1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	0.72	J	1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	0.72	J	1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: PZ-4 — Lab Sample ID: 240-178047-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	2800		100	100	ug/L	1		6010B	Total Recoverable
Barium	110		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	61000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	440		8.0	8.0	ug/L	1		6020	Total Recoverable
Molybdenum	1500		5.0	5.0	ug/L	1		6020	Total Recoverable
Potassium	62000		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	40000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	1300		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	78		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	34		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.36		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	140		1.0	1.0	mg/L	1		9056A	Total/NA
Total Organic Carbon	2.0		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	2.0		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	2.0		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	2.0		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PZ-4 (Continued) — Lab Sample ID: 240-178047-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 4	2.0		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: PZ-5 — Lab Sample ID: 240-178047-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	13000		100	100	ug/L	1		6010B	Total Recoverable
Barium	83		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	240000		1000	1000	ug/L	1		6020	Total Recoverable
Molybdenum	9600		25	25	ug/L	5		6020	Total Recoverable
Potassium	3000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	8700		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	110		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	70		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	27		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.10		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	560		5.0	5.0	mg/L	5		9056A	Total/NA
Total Organic Carbon	2.5		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	2.5		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	2.5		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	2.5		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	2.5		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: P-01 — Lab Sample ID: 240-178047-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	34		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	90000		1000	1000	ug/L	1		6020	Total Recoverable
Magnesium	21000		1000	1000	ug/L	1		6020	Total Recoverable
Molybdenum	19		5.0	5.0	ug/L	1		6020	Total Recoverable
Potassium	2800		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	58000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	1800		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	180		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	180		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	110		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.61		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	180		1.0	1.0	mg/L	1		9056A	Total/NA
Total Organic Carbon	3.4		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	3.4		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	3.4		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	3.4		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	3.4		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: LE-01 — Lab Sample ID: 240-178047-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	26		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	37000		1000	1000	ug/L	1		6020	Total Recoverable
Magnesium	11000		1000	1000	ug/L	1		6020	Total Recoverable
Molybdenum	5.6		5.0	5.0	ug/L	1		6020	Total Recoverable
Potassium	3300		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	12000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	270		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	110		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	110		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	21		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.13		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	28		1.0	1.0	mg/L	1		9056A	Total/NA
Total Organic Carbon	2.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	2.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	2.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	2.6		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	2.6		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: SW-001 — Lab Sample ID: 240-178047-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	1300		100	100	ug/L	1		6010B	Total Recoverable
Barium	320		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	190000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	140		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	20000		1000	1000	ug/L	1		6020	Total Recoverable
Molybdenum	530		5.0	5.0	ug/L	1		6020	Total Recoverable
Potassium	5700		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	38000		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	3100		10	10	ug/L	1		6020	Total Recoverable
Alkalinity	120		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	90		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Carbonate Alkalinity as CaCO3	30		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	22		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.76		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	510		5.0	5.0	mg/L	5		9056A	Total/NA
Total Organic Carbon	2.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	2.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	2.2		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SW-001 (Continued)

Lab Sample ID: 240-178047-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 3	2.2		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	2.2		1.0	0.35	mg/L	1		9060A	Total/NA

Client Sample ID: DUP-01

Lab Sample ID: 240-178047-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	230		100	100	ug/L	1		6010B	Total Recoverable
Barium	11		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	390000		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	67		8.0	8.0	ug/L	1		6020	Total Recoverable
Magnesium	150000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	3500		1000	1000	ug/L	1		6020	Total Recoverable
Sodium	6500		1000	1000	ug/L	1		6020	Total Recoverable
Alkalinity	210		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	210		5.0	5.0	mg/L	1		2320B-1997	Total/NA
Chloride	10		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.7		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.3		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-01
Date Collected: 12/12/22 11:27
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	240		100	100	ug/L		12/20/22 12:00	12/21/22 15:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	8.7		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:34	1
Calcium	360000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:34	1
Lithium	64		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 13:34	1
Magnesium	140000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:34	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:34	1
Potassium	3300		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:34	1
Sodium	6100		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	210		5.0	5.0	mg/L			12/17/22 09:23	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	210		5.0	5.0	mg/L			12/17/22 09:23	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:23	1
Chloride (SW846 9056A)	10		1.0	1.0	mg/L			12/27/22 21:12	1
Fluoride (SW846 9056A)	1.8		0.050	0.050	mg/L			12/27/22 21:12	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			12/27/22 22:17	10
Total Organic Carbon (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 17:08	1
TOC Result 1 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 17:08	1
TOC Result 2 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 17:08	1
TOC Result 3 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 17:08	1
TOC Result 4 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 17:08	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-02

Date Collected: 12/12/22 14:13
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	370		100	100	ug/L		12/20/22 12:00	12/21/22 15:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	6.2		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:50	1
Calcium	390000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:50	1
Lithium	95		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 13:50	1
Magnesium	150000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:50	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:50	1
Potassium	3900		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:50	1
Sodium	10000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:28	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:28	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:28	1
Chloride (SW846 9056A)	13		1.0	1.0	mg/L			12/27/22 22:39	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			12/28/22 22:31	1
Sulfate (SW846 9056A)	1500		10	10	mg/L			12/27/22 23:01	10
Total Organic Carbon (SW846 9060A)	1.1		1.0	0.35	mg/L			12/28/22 17:43	1
TOC Result 1 (SW846 9060A)	1.0		1.0	0.35	mg/L			12/28/22 17:43	1
TOC Result 2 (SW846 9060A)	1.0		1.0	0.35	mg/L			12/28/22 17:43	1
TOC Result 3 (SW846 9060A)	1.1		1.0	0.35	mg/L			12/28/22 17:43	1
TOC Result 4 (SW846 9060A)	1.1		1.0	0.35	mg/L			12/28/22 17:43	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-03

Date Collected: 12/12/22 10:20
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	430		100	100	ug/L		12/20/22 12:00	12/21/22 15:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	6.2		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:57	1
Calcium	400000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:57	1
Lithium	100		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 13:57	1
Magnesium	150000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:57	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:57	1
Potassium	3900		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:57	1
Sodium	12000		1000	1000	ug/L		12/16/22 12:00	12/19/22 13:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:33	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:33	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:33	1
Chloride (SW846 9056A)	18		1.0	1.0	mg/L			12/27/22 23:23	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			12/28/22 22:53	1
Sulfate (SW846 9056A)	1500		10	10	mg/L			12/27/22 23:44	10
Total Organic Carbon (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 18:18	1
TOC Result 1 (SW846 9060A)	1.1		1.0	0.35	mg/L			12/28/22 18:18	1
TOC Result 2 (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 18:18	1
TOC Result 3 (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 18:18	1
TOC Result 4 (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 18:18	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-04
Date Collected: 12/12/22 09:04
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	150		100	100	ug/L		12/20/22 12:00	12/21/22 15:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	10		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:00	1
Calcium	500000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:00	1
Lithium	18		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:00	1
Magnesium	42000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:00	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:00	1
Potassium	2100		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:00	1
Sodium	11000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	230		5.0	5.0	mg/L			12/17/22 09:37	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	230		5.0	5.0	mg/L			12/17/22 09:37	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:37	1
Chloride (SW846 9056A)	35		1.0	1.0	mg/L			12/28/22 00:06	1
Fluoride (SW846 9056A)	1.0		0.050	0.050	mg/L			12/28/22 23:14	1
Sulfate (SW846 9056A)	1300		10	10	mg/L			12/28/22 00:28	10
Total Organic Carbon (SW846 9060A)	1.6		1.0	0.35	mg/L			12/28/22 18:53	1
TOC Result 1 (SW846 9060A)	1.6		1.0	0.35	mg/L			12/28/22 18:53	1
TOC Result 2 (SW846 9060A)	1.6		1.0	0.35	mg/L			12/28/22 18:53	1
TOC Result 3 (SW846 9060A)	1.6		1.0	0.35	mg/L			12/28/22 18:53	1
TOC Result 4 (SW846 9060A)	1.6		1.0	0.35	mg/L			12/28/22 18:53	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-05

Date Collected: 12/12/22 09:42
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	190		100	100	ug/L		12/20/22 12:00	12/21/22 16:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	5.4		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:02	1
Calcium	380000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:02	1
Lithium	39		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:02	1
Magnesium	130000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:02	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:02	1
Potassium	2900		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:02	1
Sodium	7600		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:41	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:41	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:41	1
Chloride (SW846 9056A)	11		1.0	1.0	mg/L			12/28/22 00:49	1
Fluoride (SW846 9056A)	1.5		0.050	0.050	mg/L			12/28/22 23:36	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			12/28/22 01:11	10
Total Organic Carbon (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 19:28	1
TOC Result 1 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 19:28	1
TOC Result 2 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 19:28	1
TOC Result 3 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 19:28	1
TOC Result 4 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/28/22 19:28	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-06

Date Collected: 12/12/22 13:28
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-6

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	310		100	100	ug/L		12/20/22 12:00	12/21/22 16:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	11		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:05	1
Calcium	360000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:05	1
Lithium	78		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:05	1
Magnesium	140000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:05	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:05	1
Potassium	3800		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:05	1
Sodium	10000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:45	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	190		5.0	5.0	mg/L			12/17/22 09:45	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:45	1
Chloride (SW846 9056A)	11		1.0	1.0	mg/L			12/28/22 01:33	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			12/28/22 23:58	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			12/28/22 02:38	10
Total Organic Carbon (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 20:03	1
TOC Result 1 (SW846 9060A)	1.1		1.0	0.35	mg/L			12/28/22 20:03	1
TOC Result 2 (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 20:03	1
TOC Result 3 (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 20:03	1
TOC Result 4 (SW846 9060A)	1.2		1.0	0.35	mg/L			12/28/22 20:03	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-1

Date Collected: 12/13/22 10:16
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-8

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	8100		100	100	ug/L		12/20/22 12:00	12/21/22 16:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	2300		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:07	1
Calcium	120000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:07	1
Lithium	16		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:07	1
Magnesium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 14:07	1
Molybdenum	1400		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:07	1
Potassium	23000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:07	1
Sodium	52000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:07	1
Strontium	12000		10	10	ug/L		12/16/22 12:00	12/19/22 14:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	260		5.0	5.0	mg/L			12/17/22 09:56	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 09:56	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	100		5.0	5.0	mg/L			12/17/22 09:56	1
Chloride (SW846 9056A)	45		1.0	1.0	mg/L			12/28/22 02:59	1
Fluoride (SW846 9056A)	0.48		0.050	0.050	mg/L			12/29/22 00:20	1
Sulfate (SW846 9056A)	25		1.0	1.0	mg/L			12/28/22 02:59	1
Total Organic Carbon (SW846 9060A)	11		1.0	0.35	mg/L			12/28/22 20:38	1
TOC Result 1 (SW846 9060A)	11		1.0	0.35	mg/L			12/28/22 20:38	1
TOC Result 2 (SW846 9060A)	11		1.0	0.35	mg/L			12/28/22 20:38	1
TOC Result 3 (SW846 9060A)	11		1.0	0.35	mg/L			12/28/22 20:38	1
TOC Result 4 (SW846 9060A)	11		1.0	0.35	mg/L			12/28/22 20:38	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-2

Date Collected: 12/12/22 15:38
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-9

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	5900		100	100	ug/L		12/19/22 12:00	12/20/22 14:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	600		5.0	5.0	ug/L		12/19/22 12:00	12/20/22 16:11	1
Calcium	29000		1000	1000	ug/L		12/19/22 12:00	12/20/22 16:11	1
Lithium	8.0	U	8.0	8.0	ug/L		12/19/22 12:00	12/20/22 16:11	1
Magnesium	1000	U	1000	1000	ug/L		12/19/22 12:00	12/20/22 16:11	1
Molybdenum	2100		50	50	ug/L		12/19/22 12:00	12/21/22 18:48	10
Potassium	230000		1000	1000	ug/L		12/19/22 12:00	12/20/22 16:11	1
Sodium	560000		1000	1000	ug/L		12/19/22 12:00	12/20/22 16:11	1
Strontium	3700		10	10	ug/L		12/19/22 12:00	12/20/22 16:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	1400		5.0	5.0	mg/L			12/17/22 10:04	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:04	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	610		5.0	5.0	mg/L			12/17/22 10:04	1
Chloride (SW846 9056A)	33		2.0	2.0	mg/L			12/28/22 03:43	2
Fluoride (SW846 9056A)	3.7		0.10	0.10	mg/L			12/29/22 00:41	2
Sulfate (SW846 9056A)	84		2.0	2.0	mg/L			12/28/22 03:43	2
Total Organic Carbon (SW846 9060A)	96		5.0	1.7	mg/L			12/28/22 21:14	5
TOC Result 1 (SW846 9060A)	95		5.0	1.7	mg/L			12/28/22 21:14	5
TOC Result 2 (SW846 9060A)	96		5.0	1.7	mg/L			12/28/22 21:14	5
TOC Result 3 (SW846 9060A)	96		5.0	1.7	mg/L			12/28/22 21:14	5
TOC Result 4 (SW846 9060A)	96		5.0	1.7	mg/L			12/28/22 21:14	5

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-3

Date Collected: 12/13/22 11:18
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-10

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3900		100	100	ug/L		12/20/22 12:00	12/21/22 16:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	1800		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:10	1
Calcium	100000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:10	1
Lithium	38		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:10	1
Magnesium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 14:10	1
Molybdenum	170		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:10	1
Potassium	60000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:10	1
Sodium	94000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:10	1
Strontium	14000		10	10	ug/L		12/16/22 12:00	12/19/22 14:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	320		5.0	5.0	mg/L			12/17/22 10:09	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:09	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	80		5.0	5.0	mg/L			12/17/22 10:09	1
Chloride (SW846 9056A)	33		1.0	1.0	mg/L			12/28/22 04:26	1
Fluoride (SW846 9056A)	0.84		0.050	0.050	mg/L			12/29/22 01:03	1
Sulfate (SW846 9056A)	14		1.0	1.0	mg/L			12/28/22 04:26	1
Total Organic Carbon (SW846 9060A)	0.73	J	1.0	0.35	mg/L			12/28/22 22:09	1
TOC Result 1 (SW846 9060A)	0.73	J	1.0	0.35	mg/L			12/28/22 22:09	1
TOC Result 2 (SW846 9060A)	0.73	J	1.0	0.35	mg/L			12/28/22 22:09	1
TOC Result 3 (SW846 9060A)	0.72	J	1.0	0.35	mg/L			12/28/22 22:09	1
TOC Result 4 (SW846 9060A)	0.72	J	1.0	0.35	mg/L			12/28/22 22:09	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-4

Date Collected: 12/13/22 09:13
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-11

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2800		100	100	ug/L		12/20/22 12:00	12/21/22 16:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	110		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:12	1
Calcium	61000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:12	1
Lithium	440		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:12	1
Magnesium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 14:12	1
Molybdenum	1500		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:12	1
Potassium	62000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:12	1
Sodium	40000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:12	1
Strontium	1300		10	10	ug/L		12/16/22 12:00	12/19/22 14:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	78		5.0	5.0	mg/L			12/17/22 10:13	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:13	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	44		5.0	5.0	mg/L			12/17/22 10:13	1
Chloride (SW846 9056A)	34		1.0	1.0	mg/L			12/28/22 05:09	1
Fluoride (SW846 9056A)	0.36		0.050	0.050	mg/L			12/29/22 02:08	1
Sulfate (SW846 9056A)	140		1.0	1.0	mg/L			12/28/22 05:09	1
Total Organic Carbon (SW846 9060A)	2.0		1.0	0.35	mg/L			12/28/22 22:44	1
TOC Result 1 (SW846 9060A)	2.0		1.0	0.35	mg/L			12/28/22 22:44	1
TOC Result 2 (SW846 9060A)	2.0		1.0	0.35	mg/L			12/28/22 22:44	1
TOC Result 3 (SW846 9060A)	2.0		1.0	0.35	mg/L			12/28/22 22:44	1
TOC Result 4 (SW846 9060A)	2.0		1.0	0.35	mg/L			12/28/22 22:44	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-5

Date Collected: 12/13/22 13:13
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-12

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	13000		100	100	ug/L		12/20/22 12:00	12/21/22 16:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	83		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:15	1
Calcium	240000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:15	1
Lithium	8.0	U	8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:15	1
Magnesium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 14:15	1
Molybdenum	9600		25	25	ug/L		12/16/22 12:00	12/20/22 22:02	5
Potassium	3000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:15	1
Sodium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 14:15	1
Strontium	8700		10	10	ug/L		12/16/22 12:00	12/19/22 14:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	110		5.0	5.0	mg/L			12/17/22 10:17	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:17	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	70		5.0	5.0	mg/L			12/17/22 10:17	1
Chloride (SW846 9056A)	27		1.0	1.0	mg/L			12/28/22 05:53	1
Fluoride (SW846 9056A)	0.10		0.050	0.050	mg/L			12/29/22 02:30	1
Sulfate (SW846 9056A)	560		5.0	5.0	mg/L			12/28/22 06:58	5
Total Organic Carbon (SW846 9060A)	2.5		1.0	0.35	mg/L			12/28/22 23:19	1
TOC Result 1 (SW846 9060A)	2.5		1.0	0.35	mg/L			12/28/22 23:19	1
TOC Result 2 (SW846 9060A)	2.5		1.0	0.35	mg/L			12/28/22 23:19	1
TOC Result 3 (SW846 9060A)	2.5		1.0	0.35	mg/L			12/28/22 23:19	1
TOC Result 4 (SW846 9060A)	2.5		1.0	0.35	mg/L			12/28/22 23:19	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: P-01

Date Collected: 12/13/22 14:51
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-13

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	100	ug/L		12/20/22 12:00	12/21/22 16:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**34**		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:17	1
Calcium	**90000**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:17	1
Lithium	8.0	U	8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:17	1
Magnesium	**21000**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:17	1
Molybdenum	**19**		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:17	1
Potassium	**2800**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:17	1
Sodium	**58000**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:17	1
Strontium	**1800**		10	10	ug/L		12/16/22 12:00	12/19/22 14:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	**180**		5.0	5.0	mg/L			12/17/22 10:21	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	**180**		5.0	5.0	mg/L			12/17/22 10:21	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:21	1
Chloride (SW846 9056A)	**110**		1.0	1.0	mg/L			12/28/22 07:20	1
Fluoride (SW846 9056A)	**0.61**		0.050	0.050	mg/L			12/28/22 07:20	1
Sulfate (SW846 9056A)	**180**		1.0	1.0	mg/L			12/28/22 07:20	1
Total Organic Carbon (SW846 9060A)	**3.4**		1.0	0.35	mg/L			12/28/22 23:55	1
TOC Result 1 (SW846 9060A)	**3.4**		1.0	0.35	mg/L			12/28/22 23:55	1
TOC Result 2 (SW846 9060A)	**3.4**		1.0	0.35	mg/L			12/28/22 23:55	1
TOC Result 3 (SW846 9060A)	**3.4**		1.0	0.35	mg/L			12/28/22 23:55	1
TOC Result 4 (SW846 9060A)	**3.4**		1.0	0.35	mg/L			12/28/22 23:55	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: LE-01

Date Collected: 12/13/22 15:56
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-14

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	100	ug/L		12/20/22 12:00	12/21/22 16:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**26**		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:19	1
Calcium	**37000**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:19	1
Lithium	8.0	U	8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:19	1
Magnesium	**11000**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:19	1
Molybdenum	**5.6**		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:19	1
Potassium	**3300**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:19	1
Sodium	**12000**		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:19	1
Strontium	**270**		10	10	ug/L		12/16/22 12:00	12/19/22 14:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	**110**		5.0	5.0	mg/L			12/17/22 10:25	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	**110**		5.0	5.0	mg/L			12/17/22 10:25	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:25	1
Chloride (SW846 9056A)	**21**		1.0	1.0	mg/L			12/28/22 08:03	1
Fluoride (SW846 9056A)	**0.13**		0.050	0.050	mg/L			12/28/22 08:03	1
Sulfate (SW846 9056A)	**28**		1.0	1.0	mg/L			12/28/22 08:03	1
Total Organic Carbon (SW846 9060A)	**2.6**		1.0	0.35	mg/L			12/29/22 00:30	1
TOC Result 1 (SW846 9060A)	**2.6**		1.0	0.35	mg/L			12/29/22 00:30	1
TOC Result 2 (SW846 9060A)	**2.6**		1.0	0.35	mg/L			12/29/22 00:30	1
TOC Result 3 (SW846 9060A)	**2.6**		1.0	0.35	mg/L			12/29/22 00:30	1
TOC Result 4 (SW846 9060A)	**2.6**		1.0	0.35	mg/L			12/29/22 00:30	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: SW-001

Date Collected: 12/13/22 12:19
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-15

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1300		100	100	ug/L		12/20/22 12:00	12/21/22 16:41	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	320		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:27	1
Calcium	190000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:27	1
Lithium	140		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:27	1
Magnesium	20000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:27	1
Molybdenum	530		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:27	1
Potassium	5700		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:27	1
Sodium	38000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:27	1
Strontium	3100		10	10	ug/L		12/16/22 12:00	12/19/22 14:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	120		5.0	5.0	mg/L			12/17/22 10:29	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	90		5.0	5.0	mg/L			12/17/22 10:29	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	30		5.0	5.0	mg/L			12/17/22 10:29	1
Chloride (SW846 9056A)	22		1.0	1.0	mg/L			12/28/22 09:08	1
Fluoride (SW846 9056A)	0.76		0.050	0.050	mg/L			12/28/22 09:08	1
Sulfate (SW846 9056A)	510		5.0	5.0	mg/L			12/28/22 09:30	5
Total Organic Carbon (SW846 9060A)	2.2		1.0	0.35	mg/L			12/29/22 01:06	1
TOC Result 1 (SW846 9060A)	2.2		1.0	0.35	mg/L			12/29/22 01:06	1
TOC Result 2 (SW846 9060A)	2.2		1.0	0.35	mg/L			12/29/22 01:06	1
TOC Result 3 (SW846 9060A)	2.2		1.0	0.35	mg/L			12/29/22 01:06	1
TOC Result 4 (SW846 9060A)	2.2		1.0	0.35	mg/L			12/29/22 01:06	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: DUP-01

Date Collected: 12/12/22 00:00
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-16

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	230		100	100	ug/L		12/20/22 12:00	12/21/22 16:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	11		5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:29	1
Calcium	390000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:29	1
Lithium	67		8.0	8.0	ug/L		12/16/22 12:00	12/19/22 14:29	1
Magnesium	150000		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:29	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 14:29	1
Potassium	3500		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:29	1
Sodium	6500		1000	1000	ug/L		12/16/22 12:00	12/19/22 14:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	210		5.0	5.0	mg/L			12/17/22 10:34	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	210		5.0	5.0	mg/L			12/17/22 10:34	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	5.0	mg/L			12/17/22 10:34	1
Chloride (SW846 9056A)	10		1.0	1.0	mg/L			12/28/22 09:51	1
Fluoride (SW846 9056A)	1.7		0.050	0.050	mg/L			12/28/22 09:51	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			12/28/22 10:13	10
Total Organic Carbon (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 01:41	1
TOC Result 1 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 01:41	1
TOC Result 2 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 01:41	1
TOC Result 3 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 01:41	1
TOC Result 4 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 01:41	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-556526/1-A
Matrix: Water
Analysis Batch: 556763

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	100	ug/L		12/19/22 12:00	12/20/22 13:41	1

Lab Sample ID: LCS 240-556526/2-A
Matrix: Water
Analysis Batch: 556763

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 556526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1000	1040		ug/L		104	80 - 120

Lab Sample ID: MB 240-556682/1-A
Matrix: Water
Analysis Batch: 556918

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556682

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	100	ug/L		12/20/22 12:00	12/21/22 15:10	1

Lab Sample ID: LCS 240-556682/2-A
Matrix: Water
Analysis Batch: 556918

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 556682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1000	997		ug/L		100	80 - 120

Lab Sample ID: 240-178047-1 MS
Matrix: Water
Analysis Batch: 556918

Client Sample ID: MW-16-01
Prep Type: Total Recoverable
Prep Batch: 556682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	240		1000	1260		ug/L		102	75 - 125

Lab Sample ID: 240-178047-1 MSD
Matrix: Water
Analysis Batch: 556918

Client Sample ID: MW-16-01
Prep Type: Total Recoverable
Prep Batch: 556682

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	240		1000	1290		ug/L		105	75 - 125	3	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-556258/1-A
Matrix: Water
Analysis Batch: 556606

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556258

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:29	1
Calcium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 13:29	1
Lithium	8.0	U	8.0	8.0	ug/L		12/16/22 12:00	12/19/22 13:29	1
Magnesium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 13:29	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/16/22 12:00	12/19/22 13:29	1
Potassium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 13:29	1

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

Lab Sample ID: MB 240-556258/1-A
Matrix: Water
Analysis Batch: 556606

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556258

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	1000	U	1000	1000	ug/L		12/16/22 12:00	12/19/22 13:29	1
Strontium	10	U	10	10	ug/L		12/16/22 12:00	12/19/22 13:29	1

Lab Sample ID: LCS 240-556258/2-A
Matrix: Water
Analysis Batch: 556606

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 556258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	1000	889		ug/L		89	80 - 120
Calcium	25000	23800		ug/L		95	80 - 120
Lithium	500	475		ug/L		95	80 - 120
Magnesium	25000	23900		ug/L		96	80 - 120
Molybdenum	500	459		ug/L		92	80 - 120
Potassium	25000	23800		ug/L		95	80 - 120
Sodium	25000	23900		ug/L		95	80 - 120
Strontium	500	454		ug/L		91	80 - 120

Lab Sample ID: 240-178047-1 MS
Matrix: Water
Analysis Batch: 556606

Client Sample ID: MW-16-01
Prep Type: Total Recoverable
Prep Batch: 556258

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	8.7		1000	899		ug/L		89	75 - 125
Calcium	360000		25000	381000	4	ug/L		84	75 - 125
Lithium	64		500	539		ug/L		95	75 - 125
Magnesium	140000		25000	160000	4	ug/L		95	75 - 125
Molybdenum	5.0	U	500	470		ug/L		94	75 - 125
Potassium	3300		25000	27000		ug/L		95	75 - 125
Sodium	6100		25000	30100		ug/L		96	75 - 125
Strontium	11000		500	11000	4	ug/L		64	75 - 125

Lab Sample ID: 240-178047-1 MSD
Matrix: Water
Analysis Batch: 556606

Client Sample ID: MW-16-01
Prep Type: Total Recoverable
Prep Batch: 556258

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	8.7		1000	1020		ug/L		102	75 - 125	13	20
Calcium	360000		25000	391000	4	ug/L		123	75 - 125	3	20
Lithium	64		500	541		ug/L		95	75 - 125	0	20
Magnesium	140000		25000	165000	4	ug/L		114	75 - 125	3	20
Molybdenum	5.0	U	500	482		ug/L		96	75 - 125	3	20
Potassium	3300		25000	27200		ug/L		96	75 - 125	1	20
Sodium	6100		25000	30400		ug/L		97	75 - 125	1	20
Strontium	11000		500	11600	4	ug/L		170	75 - 125	5	20

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

Lab Sample ID: MB 240-556526/1-A
Matrix: Water
Analysis Batch: 556813

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	5.0	U	5.0	5.0	ug/L		12/19/22 12:00	12/20/22 15:45	1
Calcium	1000	U	1000	1000	ug/L		12/19/22 12:00	12/20/22 15:45	1
Lithium	8.0	U	8.0	8.0	ug/L		12/19/22 12:00	12/20/22 15:45	1
Magnesium	1000	U	1000	1000	ug/L		12/19/22 12:00	12/20/22 15:45	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/19/22 12:00	12/20/22 15:45	1
Potassium	1000	U	1000	1000	ug/L		12/19/22 12:00	12/20/22 15:45	1
Sodium	1000	U	1000	1000	ug/L		12/19/22 12:00	12/20/22 15:45	1
Strontium	10	U	10	10	ug/L		12/19/22 12:00	12/20/22 15:45	1

Lab Sample ID: LCS 240-556526/3-A
Matrix: Water
Analysis Batch: 556813

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 556526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	1000	928		ug/L		93	80 - 120
Calcium	25000	24600		ug/L		98	80 - 120
Lithium	500	472		ug/L		94	80 - 120
Magnesium	25000	24800		ug/L		99	80 - 120
Molybdenum	500	467		ug/L		93	80 - 120
Potassium	25000	25100		ug/L		100	80 - 120
Sodium	25000	24700		ug/L		99	80 - 120
Strontium	500	482		ug/L		96	80 - 120

Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: MB 240-556464/109
Matrix: Water
Analysis Batch: 556464

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0	5.0	mg/L			12/16/22 21:47	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0	5.0	mg/L			12/16/22 21:47	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0	5.0	mg/L			12/16/22 21:47	1

Lab Sample ID: MB 240-556464/83
Matrix: Water
Analysis Batch: 556464

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0	5.0	mg/L			12/16/22 19:57	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0	5.0	mg/L			12/16/22 19:57	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0	5.0	mg/L			12/16/22 19:57	1

Lab Sample ID: LCS 240-556464/108
Matrix: Water
Analysis Batch: 556464

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	146	140		mg/L		96	86 - 123

Method: 2320B-1997 - Alkalinity, Total (Continued)

Lab Sample ID: 240-178047-6 DU
Matrix: Water
Analysis Batch: 556464

Client Sample ID: MW-16-06
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	190		190		mg/L		2	20
Bicarbonate Alkalinity as CaCO3	190		190		mg/L		2	20
Carbonate Alkalinity as CaCO3	5.0	U	5.0	U	mg/L		NC	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-557247/3
Matrix: Water
Analysis Batch: 557247

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			12/27/22 17:57	1
Fluoride	0.050	U	0.050	0.050	mg/L			12/27/22 17:57	1
Sulfate	1.0	U	1.0	1.0	mg/L			12/27/22 17:57	1

Lab Sample ID: LCS 240-557247/4
Matrix: Water
Analysis Batch: 557247

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	49.3		mg/L		99	90 - 110
Fluoride	2.50	2.66		mg/L		106	90 - 110
Sulfate	50.0	50.8		mg/L		102	90 - 110

Lab Sample ID: 240-178047-14 MS
Matrix: Water
Analysis Batch: 557247

Client Sample ID: LE-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	21		50.0	71.9		mg/L		103	80 - 120
Fluoride	0.13		2.50	2.97		mg/L		114	80 - 120
Sulfate	28		50.0	80.4		mg/L		105	80 - 120

Lab Sample ID: 240-178047-14 MSD
Matrix: Water
Analysis Batch: 557247

Client Sample ID: LE-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	21		50.0	71.9		mg/L		103	80 - 120	0	15
Fluoride	0.13		2.50	2.99		mg/L		115	80 - 120	1	15
Sulfate	28		50.0	80.6		mg/L		105	80 - 120	0	15

Lab Sample ID: MB 240-557360/3
Matrix: Water
Analysis Batch: 557360

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.050	U	0.050	0.050	mg/L			12/28/22 21:48	1

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

Lab Sample ID: LCS 240-557360/4
Matrix: Water
Analysis Batch: 557360

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		

Lab Sample ID: 240-178047-12 MS
Matrix: Water
Analysis Batch: 557360

Client Sample ID: PZ-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Fluoride	0.10		2.50	2.96		mg/L		114	80 - 120		

Lab Sample ID: 240-178047-12 MSD
Matrix: Water
Analysis Batch: 557360

Client Sample ID: PZ-5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	0.10		2.50	2.98		mg/L		115	80 - 120	1	15

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 240-557515/4
Matrix: Water
Analysis Batch: 557515

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0	0.35	mg/L			12/28/22 16:49	1
TOC Result 1	1.0	U	1.0	0.35	mg/L			12/28/22 16:49	1

Lab Sample ID: LCS 240-557515/5
Matrix: Water
Analysis Batch: 557515

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Organic Carbon			18.3	18.3		mg/L		100	85 - 115		
TOC Result 1			18.3	18.3		mg/L		100	85 - 115		

Metals

Prep Batch: 556258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total Recoverable	Water	3005A	
240-178047-2	MW-16-02	Total Recoverable	Water	3005A	
240-178047-3	MW-16-03	Total Recoverable	Water	3005A	
240-178047-4	MW-16-04	Total Recoverable	Water	3005A	
240-178047-5	MW-16-05	Total Recoverable	Water	3005A	
240-178047-6	MW-16-06	Total Recoverable	Water	3005A	
240-178047-8	PZ-1	Total Recoverable	Water	3005A	
240-178047-10	PZ-3	Total Recoverable	Water	3005A	
240-178047-11	PZ-4	Total Recoverable	Water	3005A	
240-178047-12	PZ-5	Total Recoverable	Water	3005A	
240-178047-13	P-01	Total Recoverable	Water	3005A	
240-178047-14	LE-01	Total Recoverable	Water	3005A	
240-178047-15	SW-001	Total Recoverable	Water	3005A	
240-178047-16	DUP-01	Total Recoverable	Water	3005A	
MB 240-556258/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-556258/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-178047-1 MS	MW-16-01	Total Recoverable	Water	3005A	
240-178047-1 MSD	MW-16-01	Total Recoverable	Water	3005A	

Prep Batch: 556526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-9	PZ-2	Total Recoverable	Water	3005A	
MB 240-556526/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-556526/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-556526/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 556606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total Recoverable	Water	6020	556258
240-178047-2	MW-16-02	Total Recoverable	Water	6020	556258
240-178047-3	MW-16-03	Total Recoverable	Water	6020	556258
240-178047-4	MW-16-04	Total Recoverable	Water	6020	556258
240-178047-5	MW-16-05	Total Recoverable	Water	6020	556258
240-178047-6	MW-16-06	Total Recoverable	Water	6020	556258
240-178047-8	PZ-1	Total Recoverable	Water	6020	556258
240-178047-10	PZ-3	Total Recoverable	Water	6020	556258
240-178047-11	PZ-4	Total Recoverable	Water	6020	556258
240-178047-12	PZ-5	Total Recoverable	Water	6020	556258
240-178047-13	P-01	Total Recoverable	Water	6020	556258
240-178047-14	LE-01	Total Recoverable	Water	6020	556258
240-178047-15	SW-001	Total Recoverable	Water	6020	556258
240-178047-16	DUP-01	Total Recoverable	Water	6020	556258
MB 240-556258/1-A	Method Blank	Total Recoverable	Water	6020	556258
LCS 240-556258/2-A	Lab Control Sample	Total Recoverable	Water	6020	556258
240-178047-1 MS	MW-16-01	Total Recoverable	Water	6020	556258
240-178047-1 MSD	MW-16-01	Total Recoverable	Water	6020	556258

Prep Batch: 556682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total Recoverable	Water	3005A	
240-178047-2	MW-16-02	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 556682 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-3	MW-16-03	Total Recoverable	Water	3005A	
240-178047-4	MW-16-04	Total Recoverable	Water	3005A	
240-178047-5	MW-16-05	Total Recoverable	Water	3005A	
240-178047-6	MW-16-06	Total Recoverable	Water	3005A	
240-178047-8	PZ-1	Total Recoverable	Water	3005A	
240-178047-10	PZ-3	Total Recoverable	Water	3005A	
240-178047-11	PZ-4	Total Recoverable	Water	3005A	
240-178047-12	PZ-5	Total Recoverable	Water	3005A	
240-178047-13	P-01	Total Recoverable	Water	3005A	
240-178047-14	LE-01	Total Recoverable	Water	3005A	
240-178047-15	SW-001	Total Recoverable	Water	3005A	
240-178047-16	DUP-01	Total Recoverable	Water	3005A	
MB 240-556682/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-556682/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
240-178047-1 MS	MW-16-01	Total Recoverable	Water	3005A	
240-178047-1 MSD	MW-16-01	Total Recoverable	Water	3005A	

Analysis Batch: 556763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-9	PZ-2	Total Recoverable	Water	6010B	556526
MB 240-556526/1-A	Method Blank	Total Recoverable	Water	6010B	556526
LCS 240-556526/2-A	Lab Control Sample	Total Recoverable	Water	6010B	556526

Analysis Batch: 556813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-9	PZ-2	Total Recoverable	Water	6020	556526
240-178047-12	PZ-5	Total Recoverable	Water	6020	556258
MB 240-556526/1-A	Method Blank	Total Recoverable	Water	6020	556526
LCS 240-556526/3-A	Lab Control Sample	Total Recoverable	Water	6020	556526

Analysis Batch: 556918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total Recoverable	Water	6010B	556682
240-178047-2	MW-16-02	Total Recoverable	Water	6010B	556682
240-178047-3	MW-16-03	Total Recoverable	Water	6010B	556682
240-178047-4	MW-16-04	Total Recoverable	Water	6010B	556682
240-178047-5	MW-16-05	Total Recoverable	Water	6010B	556682
240-178047-6	MW-16-06	Total Recoverable	Water	6010B	556682
240-178047-8	PZ-1	Total Recoverable	Water	6010B	556682
240-178047-10	PZ-3	Total Recoverable	Water	6010B	556682
240-178047-11	PZ-4	Total Recoverable	Water	6010B	556682
240-178047-12	PZ-5	Total Recoverable	Water	6010B	556682
240-178047-13	P-01	Total Recoverable	Water	6010B	556682
240-178047-14	LE-01	Total Recoverable	Water	6010B	556682
240-178047-15	SW-001	Total Recoverable	Water	6010B	556682
240-178047-16	DUP-01	Total Recoverable	Water	6010B	556682
MB 240-556682/1-A	Method Blank	Total Recoverable	Water	6010B	556682
LCS 240-556682/2-A	Lab Control Sample	Total Recoverable	Water	6010B	556682
240-178047-1 MS	MW-16-01	Total Recoverable	Water	6010B	556682
240-178047-1 MSD	MW-16-01	Total Recoverable	Water	6010B	556682

Metals

Analysis Batch: 556924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-9	PZ-2	Total Recoverable	Water	6020	556526

General Chemistry

Analysis Batch: 556464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total/NA	Water	2320B-1997	
240-178047-2	MW-16-02	Total/NA	Water	2320B-1997	
240-178047-3	MW-16-03	Total/NA	Water	2320B-1997	
240-178047-4	MW-16-04	Total/NA	Water	2320B-1997	
240-178047-5	MW-16-05	Total/NA	Water	2320B-1997	
240-178047-6	MW-16-06	Total/NA	Water	2320B-1997	
240-178047-8	PZ-1	Total/NA	Water	2320B-1997	
240-178047-9	PZ-2	Total/NA	Water	2320B-1997	
240-178047-10	PZ-3	Total/NA	Water	2320B-1997	
240-178047-11	PZ-4	Total/NA	Water	2320B-1997	
240-178047-12	PZ-5	Total/NA	Water	2320B-1997	
240-178047-13	P-01	Total/NA	Water	2320B-1997	
240-178047-14	LE-01	Total/NA	Water	2320B-1997	
240-178047-15	SW-001	Total/NA	Water	2320B-1997	
240-178047-16	DUP-01	Total/NA	Water	2320B-1997	
MB 240-556464/109	Method Blank	Total/NA	Water	2320B-1997	
MB 240-556464/83	Method Blank	Total/NA	Water	2320B-1997	
LCS 240-556464/108	Lab Control Sample	Total/NA	Water	2320B-1997	
240-178047-6 DU	MW-16-06	Total/NA	Water	2320B-1997	

Analysis Batch: 557247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total/NA	Water	9056A	
240-178047-1	MW-16-01	Total/NA	Water	9056A	
240-178047-2	MW-16-02	Total/NA	Water	9056A	
240-178047-2	MW-16-02	Total/NA	Water	9056A	
240-178047-3	MW-16-03	Total/NA	Water	9056A	
240-178047-3	MW-16-03	Total/NA	Water	9056A	
240-178047-4	MW-16-04	Total/NA	Water	9056A	
240-178047-4	MW-16-04	Total/NA	Water	9056A	
240-178047-5	MW-16-05	Total/NA	Water	9056A	
240-178047-5	MW-16-05	Total/NA	Water	9056A	
240-178047-6	MW-16-06	Total/NA	Water	9056A	
240-178047-6	MW-16-06	Total/NA	Water	9056A	
240-178047-8	PZ-1	Total/NA	Water	9056A	
240-178047-9	PZ-2	Total/NA	Water	9056A	
240-178047-10	PZ-3	Total/NA	Water	9056A	
240-178047-11	PZ-4	Total/NA	Water	9056A	
240-178047-12	PZ-5	Total/NA	Water	9056A	
240-178047-12	PZ-5	Total/NA	Water	9056A	
240-178047-13	P-01	Total/NA	Water	9056A	
240-178047-14	LE-01	Total/NA	Water	9056A	
240-178047-15	SW-001	Total/NA	Water	9056A	
240-178047-15	SW-001	Total/NA	Water	9056A	
240-178047-16	DUP-01	Total/NA	Water	9056A	

General Chemistry (Continued)

Analysis Batch: 557247 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-16	DUP-01	Total/NA	Water	9056A	
MB 240-557247/3	Method Blank	Total/NA	Water	9056A	
LCS 240-557247/4	Lab Control Sample	Total/NA	Water	9056A	
240-178047-14 MS	LE-01	Total/NA	Water	9056A	
240-178047-14 MSD	LE-01	Total/NA	Water	9056A	

Analysis Batch: 557360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-2	MW-16-02	Total/NA	Water	9056A	
240-178047-3	MW-16-03	Total/NA	Water	9056A	
240-178047-4	MW-16-04	Total/NA	Water	9056A	
240-178047-5	MW-16-05	Total/NA	Water	9056A	
240-178047-6	MW-16-06	Total/NA	Water	9056A	
240-178047-8	PZ-1	Total/NA	Water	9056A	
240-178047-9	PZ-2	Total/NA	Water	9056A	
240-178047-10	PZ-3	Total/NA	Water	9056A	
240-178047-11	PZ-4	Total/NA	Water	9056A	
240-178047-12	PZ-5	Total/NA	Water	9056A	
MB 240-557360/3	Method Blank	Total/NA	Water	9056A	
LCS 240-557360/4	Lab Control Sample	Total/NA	Water	9056A	
240-178047-12 MS	PZ-5	Total/NA	Water	9056A	
240-178047-12 MSD	PZ-5	Total/NA	Water	9056A	

Analysis Batch: 557515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178047-1	MW-16-01	Total/NA	Water	9060A	
240-178047-2	MW-16-02	Total/NA	Water	9060A	
240-178047-3	MW-16-03	Total/NA	Water	9060A	
240-178047-4	MW-16-04	Total/NA	Water	9060A	
240-178047-5	MW-16-05	Total/NA	Water	9060A	
240-178047-6	MW-16-06	Total/NA	Water	9060A	
240-178047-8	PZ-1	Total/NA	Water	9060A	
240-178047-9	PZ-2	Total/NA	Water	9060A	
240-178047-10	PZ-3	Total/NA	Water	9060A	
240-178047-11	PZ-4	Total/NA	Water	9060A	
240-178047-12	PZ-5	Total/NA	Water	9060A	
240-178047-13	P-01	Total/NA	Water	9060A	
240-178047-14	LE-01	Total/NA	Water	9060A	
240-178047-15	SW-001	Total/NA	Water	9060A	
240-178047-16	DUP-01	Total/NA	Water	9060A	
MB 240-557515/4	Method Blank	Total/NA	Water	9060A	
LCS 240-557515/5	Lab Control Sample	Total/NA	Water	9060A	

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-01

Lab Sample ID: 240-178047-1

Date Collected: 12/12/22 11:27

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 15:18
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 13:34
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:23
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/27/22 21:12
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/27/22 22:17
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 17:08

Client Sample ID: MW-16-02

Lab Sample ID: 240-178047-2

Date Collected: 12/12/22 14:13

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 15:47
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 13:50
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:28
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/27/22 22:39
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/27/22 23:01
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/28/22 22:31
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 17:43

Client Sample ID: MW-16-03

Lab Sample ID: 240-178047-3

Date Collected: 12/12/22 10:20

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 15:51
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 13:57
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:33
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/27/22 23:23
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/27/22 23:44
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/28/22 22:53
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 18:18

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: MW-16-04

Lab Sample ID: 240-178047-4

Date Collected: 12/12/22 09:04

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 15:55
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:00
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:37
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 00:06
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/28/22 00:28
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/28/22 23:14
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 18:53

Client Sample ID: MW-16-05

Lab Sample ID: 240-178047-5

Date Collected: 12/12/22 09:42

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:00
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:02
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:41
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 00:49
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/28/22 01:11
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/28/22 23:36
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 19:28

Client Sample ID: MW-16-06

Lab Sample ID: 240-178047-6

Date Collected: 12/12/22 13:28

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:04
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:05
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:45
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 01:33
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/28/22 02:38
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/28/22 23:58
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 20:03

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-1

Lab Sample ID: 240-178047-8

Date Collected: 12/13/22 10:16

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:08
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:07
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 09:56
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 02:59
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/29/22 00:20
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 20:38

Client Sample ID: PZ-2

Lab Sample ID: 240-178047-9

Date Collected: 12/12/22 15:38

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556526	SHB	EET CAN	12/19/22 12:00
Total Recoverable	Analysis	6010B		1	556763	KLC	EET CAN	12/20/22 14:27
Total Recoverable	Prep	3005A			556526	SHB	EET CAN	12/19/22 12:00
Total Recoverable	Analysis	6020		1	556813	AJC	EET CAN	12/20/22 16:11
Total Recoverable	Prep	3005A			556526	SHB	EET CAN	12/19/22 12:00
Total Recoverable	Analysis	6020		10	556924	AJC	EET CAN	12/21/22 18:48
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:04
Total/NA	Analysis	9056A		2	557247	JMB	EET CAN	12/28/22 03:43
Total/NA	Analysis	9056A		2	557360	JMB	EET CAN	12/29/22 00:41
Total/NA	Analysis	9060A		5	557515	MMS	EET CAN	12/28/22 21:14

Client Sample ID: PZ-3

Lab Sample ID: 240-178047-10

Date Collected: 12/13/22 11:18

Matrix: Water

Date Received: 12/15/22 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:12
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:10
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:09
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 04:26
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/29/22 01:03
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 22:09

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: PZ-4

Date Collected: 12/13/22 09:13
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:16
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:12
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:13
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 05:09
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/29/22 02:08
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 22:44

Client Sample ID: PZ-5

Date Collected: 12/13/22 13:13
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:20
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:15
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		5	556813	AJC	EET CAN	12/20/22 22:02
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:17
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 05:53
Total/NA	Analysis	9056A		5	557247	JMB	EET CAN	12/28/22 06:58
Total/NA	Analysis	9056A		1	557360	JMB	EET CAN	12/29/22 02:30
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 23:19

Client Sample ID: P-01

Date Collected: 12/13/22 14:51
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:24
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:17
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:21
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 07:20
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/28/22 23:55

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Fly Ash Basin

Job ID: 240-178047-1

Client Sample ID: LE-01

Date Collected: 12/13/22 15:56
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:37
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:19
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:25
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 08:03
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/29/22 00:30

Client Sample ID: SW-001

Date Collected: 12/13/22 12:19
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:41
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:27
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:29
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 09:08
Total/NA	Analysis	9056A		5	557247	JMB	EET CAN	12/28/22 09:30
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/29/22 01:06

Client Sample ID: DUP-01

Date Collected: 12/12/22 00:00
Date Received: 12/15/22 08:00

Lab Sample ID: 240-178047-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556682	SHB	EET CAN	12/20/22 12:00
Total Recoverable	Analysis	6010B		1	556918	RKT	EET CAN	12/21/22 16:45
Total Recoverable	Prep	3005A			556258	SHB	EET CAN	12/16/22 12:00
Total Recoverable	Analysis	6020		1	556606	AJC	EET CAN	12/19/22 14:29
Total/NA	Analysis	2320B-1997		1	556464	JMR	EET CAN	12/17/22 10:34
Total/NA	Analysis	9056A		1	557247	JMB	EET CAN	12/28/22 09:51
Total/NA	Analysis	9056A		10	557247	JMB	EET CAN	12/28/22 10:13
Total/NA	Analysis	9060A		1	557515	MMS	EET CAN	12/29/22 01:41

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. Job ID: 240-178047-1
Project/Site: CCR DTE Monroe Fly Ash Basin

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	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	01-08-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
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	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

2.1.20

Chain of Custody Record

MICHIGAN 190

16/15

eurofins | Environment Testing

Client Information	Sampler: Jake Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-102238-37085.1
Client Contact: Jacob Krenz	Phone: 734-395-9804	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin: MI	Page: Page 1 of 2
Company: TRC Environmental Corporation.	PWSID:	Analysis Requested		Job #:
Address: 1540 Eisenhower Place	Due Date Requested:			Preservation Codes: A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Y - Trizma; Z - other (specify); Other:
City: Ann Arbor	TAT Requested (days): std			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: ~~170674 - 2022~~ 193523			
Email: JKrenz@trccompanies.com	WO #: ~~370829.0003 P1 T2~~			
Project Name: ~~Marcor~~ FLYASH BASIN CCR DTE ~~Belle River Power Aquifer~~	Project #: ~~24016483~~ 52271.0000.0004 P1			
Site: Michigan	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B - Carb, BiCarb & Total Alkalinity	9056A_28D - Chloride, Sulfate	6020 - (MOD) Metals - Ca,Mg,Na,K, ~~Mn, Sr~~	TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D			
MW-16-01	12-12-22	1127	G	Water	N	N	X	X	X	X	4	
MW-16-02	12-12-22	1413		Water			X	X	X	X	4	
MW-16-03	12-12-22	1020		Water			X	X	X	X	4	
MW-16-04	12-12-22	0904		Water			X	X	X	X	4	
MW-16-05	12-12-22	0942		Water			X	X	X	X	4	
MW-16-06	12-12-22	1328		Water			X	X	X	X	4	
MW-16-07	12-9-22	1253		Water			X	X	X	X	4	
PZ-1	12-13-22	1016		Water			X	X	X	X	4	
PZ-2	12-12-22	1538		Water			X	X	X	X	4	
PZ-3	12-13-22	1118		Water			X	X	X	X	4	
PZ-4	12-13-22	0913	↓	Water	↓	↓	X	X	X	X	4	

240-178047 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		12-14-22 / 0545	TRC	TRC Storage	12-14-22 / 0545	TRC
2		12-14-22 1307	TRC		12/14/22 1307	
3		12/14/22 1400		M. A. A.	12/15/22 8:00	FSL

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

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2/27/2023 (Rev. 1)

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

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing

Client Information	Sampler: Jake Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-102238-37085.2
Client Contact: Jacob Krenz	Phone: ~~734-375-9804~~	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin: MI	Page: Page 2 of 2
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested:			
City: Ann Arbor	TAT Requested (days): Std			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: ~~170971-2022~~ 193523			
Email: JKrenz@trccompanies.com	WO #: ~~370029.0003 P1 T2~~			
Project Name: Marcy Fly Ash Basin CCR DTE ~~Belle River Power/Aquifer~~	Project #: ~~24016403~~ S22171.0000.0000 P1			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B - Carb, BiCarb & Total Alkalinity	9056A_28D - Chloride, Sulfate	6020 - (MOD) Metals - Ca,Mg,Na,K, Mo, Ba	TOC	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D			
Pz-5	12-8-22	1313	G	Water	N	N	X	X	X	X	4	
P-01	12-13-22	1451		Water			X	X	X	X	4	
LE-01	12-13-22	1556		Water			X	X	X	X	4	
SW-001	12-13-22	1219		Water			X	X	X	X	4	
Dup-01	12-12-22	—		Water			X	X	X	X	4	
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12-14-22 / 0545	TRC	TRC storage	12-14-22 / 0545	TRC
Relinquished by:	Date/Time: 12-14-22 1307	Company TRC	Received by:	Date/Time: 12/14/22 1307	Company
Relinquished by:	Date/Time: 12/14/22 1400	Company	Received by: M. A. A.	Date/Time: 12/15/22 8:00	Company FEC

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

Ver: 06/08/2021

Euron... - Canton Sample Receipt Form/Narrative **Login # :** _____
Barberton Facility

Client IRC Site Name _____ Cooler unpacked by: Nancy Boyer

Cooler Received on 12-15-22 Opened on 12-15-22

FedEx: 1st Grd Exp UPS FAS (Clipper) Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # TA 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 # IR-13 (CF **-0.2** °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   IR GUN # IR-16 (CF **-0.1**°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   IR GUN # IR-17 (CF **-0.3**°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 each	(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)?	(Y)	(N) (Y)
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?	TR (Yes)	(No) NA pH Strip Lot# **HC291590**
14. Were VOAs on the COC?	(Yes)	No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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)

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:

MW-16-07 did not arrive in cooler.

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: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservative Added (mls)	Lot #
MW-16-01	240-178047-D-1	Plastic 500ml - with Nitric Acid	<2			
MW-16-02	240-178047-D-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-03	240-178047-D-3	Plastic 500ml - with Nitric Acid	<2			
MW-16-04	240-178047-D-4	Plastic 500ml - with Nitric Acid	<2			
MW-16-05	240-178047-D-5	Plastic 500ml - with Nitric Acid	<2			
MW-16-06	240-178047-D-6	Plastic 500ml - with Nitric Acid	<2			
~~MW-16-07~~ N.A.	~~240-178047-D-7~~	~~Plastic 500ml - with Nitric Acid~~	~~<2~~			
PZ-1	240-178047-D-8	Plastic 500ml - with Nitric Acid	<2			
PZ-2	240-178047-D-9	Plastic 500ml - with Nitric Acid	<2			
PZ-3	240-178047-D-10	Plastic 500ml - with Nitric Acid	<2			
PZ-4	240-178047-D-11	Plastic 500ml - with Nitric Acid	<2			
PZ-5	240-178047-D-12	Plastic 500ml - with Nitric Acid	<2			
P-01	240-178047-D-13	Plastic 500ml - with Nitric Acid	<2			
LE-01	240-178047-D-14	Plastic 500ml - with Nitric Acid	<2			
SW-001	240-178047-D-15	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-178047-D-16	Plastic 500ml - with Nitric Acid	<2			

Login # : ______________

Eurofins - Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC Client Box Other	IR-13 **IR-16** IR-17	2.1	2.0	**Wet Ice** Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 **IR-16** IR-17	1.6	1.5	**Wet Ice** Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 1/4/2023 7:35:16 PM

JOB DESCRIPTION

CCR DTE Monroe FAB

JOB NUMBER

240-178303-1

Eurofins Canton
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

myEOL

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

Generated
1/4/2023 7:35:16 PM

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

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe FAB

Job ID: 240-178303-1

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 Monroe FAB

Job ID: 240-178303-1

Job ID: 240-178303-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-178303-1

Receipt
The sample was received on 12/20/2022 10:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°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 Monroe FAB

Job ID: 240-178303-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	EET CAN
6020	Metals (ICP/MS)	SW846	EET CAN
2320B-1997	Alkalinity, Total	SM	EET CAN
9056A	Anions, Ion Chromatography	SW846	EET CAN
9060A	Organic Carbon, Total (TOC)	SW846	EET CAN
3005A	Preparation, Total Recoverable or Dissolved Metals	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 Monroe FAB

Job ID: 240-178303-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-178303-1	MW-16-07	Water	12/09/22 12:53	12/20/22 10:00

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe FAB

Job ID: 240-178303-1

Client Sample ID: MW-16-07

Lab Sample ID: 240-178303-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	190		100	57	ug/L	1		6010B	Total Recoverable
Barium	6.2		5.0	5.0	ug/L	1		6020	Total Recoverable
Calcium	380000		1000	1000	ug/L	1		6020	Total Recoverable
Magnesium	120000		1000	1000	ug/L	1		6020	Total Recoverable
Potassium	2700		1000	1000	ug/L	1		6020	Total Recoverable
Strontium	12000		10	10	ug/L	1		6020	Total Recoverable
Sodium	6900		1000	1000	ug/L	1		6020	Total Recoverable
Lithium	34		8.0	8.0	ug/L	1		6020	Total Recoverable
Alkalinity	190		5.0	2.6	mg/L	1		2320B-1997	Total/NA
Bicarbonate Alkalinity as CaCO3	190		5.0	2.6	mg/L	1		2320B-1997	Total/NA
Chloride	7.6		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1300		10	10	mg/L	10		9056A	Total/NA
Total Organic Carbon	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 1	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 2	1.3		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 3	1.4		1.0	0.35	mg/L	1		9060A	Total/NA
TOC Result 4	1.4		1.0	0.35	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe FAB

Job ID: 240-178303-1

Client Sample ID: MW-16-07
Date Collected: 12/09/22 12:53
Date Received: 12/20/22 10:00

Lab Sample ID: 240-178303-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	190		100	57	ug/L		12/21/22 12:00	12/23/22 04:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	6.2		5.0	5.0	ug/L		12/21/22 12:00	12/22/22 16:51	1
Calcium	380000		1000	1000	ug/L		12/21/22 12:00	12/22/22 16:51	1
Magnesium	120000		1000	1000	ug/L		12/21/22 12:00	12/22/22 16:51	1
Potassium	2700		1000	1000	ug/L		12/21/22 12:00	12/22/22 16:51	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/21/22 12:00	12/22/22 16:51	1
Strontium	12000		10	10	ug/L		12/21/22 12:00	12/22/22 16:51	1
Sodium	6900		1000	1000	ug/L		12/21/22 12:00	12/22/22 16:51	1
Lithium	34		8.0	8.0	ug/L		12/21/22 12:00	12/22/22 16:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B-1997)	190		5.0	2.6	mg/L			12/21/22 20:43	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B-1997)	190		5.0	2.6	mg/L			12/21/22 20:43	1
Carbonate Alkalinity as CaCO3 (SM 2320B-1997)	5.0	U	5.0	2.6	mg/L			12/21/22 20:43	1
Chloride (SW846 9056A)	7.6		1.0	1.0	mg/L			12/30/22 12:01	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			12/30/22 12:01	1
Sulfate (SW846 9056A)	1300		10	10	mg/L			12/30/22 12:23	10
Total Organic Carbon (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 21:24	1
TOC Result 1 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 21:24	1
TOC Result 2 (SW846 9060A)	1.3		1.0	0.35	mg/L			12/29/22 21:24	1
TOC Result 3 (SW846 9060A)	1.4		1.0	0.35	mg/L			12/29/22 21:24	1
TOC Result 4 (SW846 9060A)	1.4		1.0	0.35	mg/L			12/29/22 21:24	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-556847/1-A
Matrix: Water
Analysis Batch: 557096

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556847

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100	57	ug/L		12/21/22 12:00	12/23/22 03:19	1

Lab Sample ID: LCS 240-556847/2-A
Matrix: Water
Analysis Batch: 557096

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 556847

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1000	979		ug/L		98	80 - 120

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-556847/1-A
Matrix: Water
Analysis Batch: 557119

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 556847

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	5.0	U	5.0	5.0	ug/L		12/21/22 12:00	12/22/22 16:05	1
Calcium	1000	U	1000	1000	ug/L		12/21/22 12:00	12/22/22 16:05	1
Magnesium	1000	U	1000	1000	ug/L		12/21/22 12:00	12/22/22 16:05	1
Potassium	1000	U	1000	1000	ug/L		12/21/22 12:00	12/22/22 16:05	1
Molybdenum	5.0	U	5.0	5.0	ug/L		12/21/22 12:00	12/22/22 16:05	1
Strontium	10	U	10	10	ug/L		12/21/22 12:00	12/22/22 16:05	1
Sodium	1000	U	1000	1000	ug/L		12/21/22 12:00	12/22/22 16:05	1
Lithium	8.0	U	8.0	8.0	ug/L		12/21/22 12:00	12/22/22 16:05	1

Lab Sample ID: LCS 240-556847/3-A
Matrix: Water
Analysis Batch: 557119

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 556847

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	1000	1010		ug/L		101	80 - 120
Calcium	25000	24200		ug/L		97	80 - 120
Magnesium	25000	23700		ug/L		95	80 - 120
Potassium	25000	24300		ug/L		97	80 - 120
Molybdenum	500	458		ug/L		92	80 - 120
Strontium	500	470		ug/L		94	80 - 120
Sodium	25000	23900		ug/L		95	80 - 120
Lithium	500	482		ug/L		96	80 - 120

Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: MB 240-557050/4
Matrix: Water
Analysis Batch: 557050

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0	2.6	mg/L			12/21/22 18:59	1
Bicarbonate Alkalinity as CaCO3	5.0	U	5.0	2.6	mg/L			12/21/22 18:59	1
Carbonate Alkalinity as CaCO3	5.0	U	5.0	2.6	mg/L			12/21/22 18:59	1

Method: 2320B-1997 - Alkalinity, Total (Continued)

Lab Sample ID: LCS 240-557050/3
Matrix: Water
Analysis Batch: 557050

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity	146	149		mg/L		102	86 - 123

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-557525/3
Matrix: Water
Analysis Batch: 557525

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			12/30/22 02:25	1
Fluoride	0.050	U	0.050	0.050	mg/L			12/30/22 02:25	1
Sulfate	1.0	U	1.0	1.0	mg/L			12/30/22 02:25	1

Lab Sample ID: LCS 240-557525/4
Matrix: Water
Analysis Batch: 557525

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	49.1		mg/L		98	90 - 110
Fluoride	2.50	2.67		mg/L		107	90 - 110
Sulfate	50.0	50.7		mg/L		101	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 240-557788/3
Matrix: Water
Analysis Batch: 557788

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0	0.35	mg/L			12/29/22 14:16	1
TOC Result 1	1.0	U	1.0	0.35	mg/L			12/29/22 14:16	1

Lab Sample ID: LCS 240-557788/4
Matrix: Water
Analysis Batch: 557788

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	18.3	18.0		mg/L		98	85 - 115
TOC Result 1	18.3	18.0		mg/L		98	85 - 115

QC Association Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe FAB

Job ID: 240-178303-1

Metals

Prep Batch: 556847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178303-1	MW-16-07	Total Recoverable	Water	3005A	
MB 240-556847/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-556847/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-556847/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 557096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178303-1	MW-16-07	Total Recoverable	Water	6010B	556847
MB 240-556847/1-A	Method Blank	Total Recoverable	Water	6010B	556847
LCS 240-556847/2-A	Lab Control Sample	Total Recoverable	Water	6010B	556847

Analysis Batch: 557119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178303-1	MW-16-07	Total Recoverable	Water	6020	556847
MB 240-556847/1-A	Method Blank	Total Recoverable	Water	6020	556847
LCS 240-556847/3-A	Lab Control Sample	Total Recoverable	Water	6020	556847

General Chemistry

Analysis Batch: 557050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178303-1	MW-16-07	Total/NA	Water	2320B-1997	
MB 240-557050/4	Method Blank	Total/NA	Water	2320B-1997	
LCS 240-557050/3	Lab Control Sample	Total/NA	Water	2320B-1997	

Analysis Batch: 557525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178303-1	MW-16-07	Total/NA	Water	9056A	
240-178303-1	MW-16-07	Total/NA	Water	9056A	
MB 240-557525/3	Method Blank	Total/NA	Water	9056A	
LCS 240-557525/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 557788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-178303-1	MW-16-07	Total/NA	Water	9060A	
MB 240-557788/3	Method Blank	Total/NA	Water	9060A	
LCS 240-557788/4	Lab Control Sample	Total/NA	Water	9060A	

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe FAB

Job ID: 240-178303-1

Client Sample ID: MW-16-07

Date Collected: 12/09/22 12:53
Date Received: 12/20/22 10:00

Lab Sample ID: 240-178303-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			556847	SHB	EET CAN	12/21/22 12:00
Total Recoverable	Analysis	6010B		1	557096	RKT	EET CAN	12/23/22 04:36
Total Recoverable	Prep	3005A			556847	SHB	EET CAN	12/21/22 12:00
Total Recoverable	Analysis	6020		1	557119	AJC	EET CAN	12/22/22 16:51
Total/NA	Analysis	2320B-1997		1	557050	JWW	EET CAN	12/21/22 20:43
Total/NA	Analysis	9056A		1	557525	JMB	EET CAN	12/30/22 12:01
Total/NA	Analysis	9056A		10	557525	JMB	EET CAN	12/30/22 12:23
Total/NA	Analysis	9060A		1	557788	MMS	EET CAN	12/29/22 21:24

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. Job ID: 240-178303-1
Project/Site: CCR DTE Monroe FAB

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	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-22
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	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
Washington	State	C971	01-12-23
West Virginia DEP	State	210	12-31-22

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

MICHIGAN 190

Chain of Custody Record

3.23.0

eurofins | Environment Testing

Client Information	Sampler: J. Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-102238-37085.3
Client Contact: Jacob Krenz	Phone: 734-395-9804	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page 3 of 7
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested:			
City: Ann Arbor	TAT Requested (days):			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: ~~170071 2022~~ 193675			
Email: JKrenz@trccompanies.com	WO #: ~~370029.0003 P112~~			
Project Name: Monroe FAB CCR DTE ~~Belle River Power~~ Aquifer	Project #: ~~240-85403~~ 52171.0000.0000.01			
Site: Michigan	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2320B - Carb, BiCarb & Total Alkalinity	9056A_28D - Chloride, Sulfate	6020 - (MOD) Metals - Ca,Mg,Na,K,Ba,B,Mn,Li; TDC		Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D	A		
MW-16-07	12-9-22	1253	G	Water	N	N	X	X	X	X	4	
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								
				Water								

240-178303 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12-19-22 / 0850	TRC	TRC Storage	12-19-22 / 0850	TRC
TRC Storage	12/19/22/1039	TRC		12/19/22 1040	
	12/19/22 1400			12-20-22 10:00	

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Eurofins - Canton Sample Receipt Form/Narrative **Login # :** 178303
Barberton Facility

Client TRC Site Name _____ Cooler unpacked by: Chantel K

Cooler Received on 12-20-22 Opened on 12-20-22

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # 2C 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 # IR-13 (CF **-0.2** °C) Observed Cooler Temp. 3.2 °C Corrected Cooler Temp. 3.0 °C

IR GUN # IR-16 (CF **-0.1**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

IR GUN # IR-17 (CF **-0.3**°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	
-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# **HC291590**
14. Were VOAs on the COC?	Yes	No	
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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	

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: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservative Added (mls)	Lot #
MW-16-07	240-178303-D-1	Plastic 500ml - with Nitric Acid				

ALS Scandinavia

ANALYSIS REPORT

Issued by:	ALS Scandinavia Luleå, Aurorum 10, SE-977 75 LULEÅ, Sweden
Client:	TRC
Date of receipt:	2022-12-22
Date of analysis:	2023-01-12
Order number(our):	LE2216212
Your reference:	Vincent Buening
Our reference:	Ilia Rodushkin

Lab number(our)	Sample name	δ11B, ‰	2SD, ‰	δ^{7}Li, ‰	2SD, ‰	$^{87}Sr/^{86}Sr$	2 SD
LE2216212-001	MW-16-01	-0.17	0.72	12.22	0.76	0.708454	0.000013
LE2216212-001	MW-16-01, r.2	-0.40	0.64	11.99	0.62	0.708488	0.000019
LE2216212-002	MW-16-02	3.75	0.55	14.23	0.66	0.708472	0.000007
LE2216212-003	MW-16-03	5.38	0.66	14.11	0.64	0.708469	0.000023
LE2216212-004	MW-16-04	5.14	0.58	13.22	0.72	0.708478	0.000013
LE2216212-005	MW-16-05	2.47	0.67	11.63	0.70	0.708472	0.000008
LE2216212-006	MW-16-06	2.32	0.65	13.60	0.77	0.708473	0.000039
LE2216212-007	MW-16-07	2.31	0.61	11.09	0.65	0.708479	0.000030
LE2216212-008	PZ-1	-11.37	0.60	16.48	0.69	0.710655	0.000022
LE2216212-009	PZ-2	-4.12	0.66	18.07*	8.14	0.711936	0.000024
LE2216212-010	PZ-3	-3.00	0.67	24.25	0.70	0.711467	0.000030
LE2216212-011	PZ-4	-17.58	0.63	8.72	0.63	0.710690	0.000013
LE2216212-011	PZ-4, r.2	-16.94	0.71	7.78	0.81	0.710664	0.000010
LE2216212-012	PZ-5	-16.26	0.62	14.95	0.98	0.709300	0.000033
LE2216212-013	P-01	9.09	0.59	19.32	0.71	0.708543	0.000037
LE2216212-014	LE-01	6.98	0.68	18.18	0.82	0.708391	0.000009
LE2216212-015	SW-001	-9.60	0.67	3.41	0.75	0.711685	0.000022
LE2216212-016	DUP-01	-0.36	0.70	12.17	0.69	0.708475	0.000020

Comments

* - Li content is too low for precise measurement

Comments

The analysis is carried out by MC-ICP-MS (NEPTUNE Plus) using internal standartization

and external calibration with bracketing isotope SRMs

Analysis is carried out after ion exchange separation

Li delta value calculated against LSVEC NIST 8545 RM

Boron delta values calculated to NIST SRM 951 RM

SD calculated from two independent consequintive measurements

* - Li content is too low for precise measurement

Signature

Ilia Rodushkin
Associate Professor
LABORATORY MANAGER
ALS Scandinavia AB

Waterloo EIL

Client: Buening/TRC

Project: Monroe Fly Ash Basin

ISO# 2022713
Location: C4
16 for 18O, 2H

Environmental Isotope Lab
2023-01-05

#	Sample	Date	Lab#	$\delta^{18}O$	Result	Repeat	$\delta^{2}H$	Result	Repeat		pH	EC	AZD
				H_2O	VSMOW ± 0.2‰		H_2O	VSMOW ± 0.8‰				uS/cm	
1	MW-16-01	2022-12-12	495315	X	-7.63	-7.47	X	-50.79	-51.41	250ml	7.11	1,873	
2	MW-16-02	2022-12-12	495316	X	-7.62		X	-50.26		250ml	7.1	1,899	
3	MW-16-03	2022-12-12	495317	X	-7.79		X	-50.30		250ml	6.99	1,982	
4	MW-16-04	2022-12-12	495318	X	-9.00	-9.03	X	-55.98	-56.16	250ml	7.02	1,870	
5	MW-16-05	2022-12-12	495319	X	-7.95		X	-51.63		250ml	6.98	1,873	
6	MW-16-06	2022-12-12	495320	X	-7.86		X	-50.81		250ml	7.09	1,882	
7	MW-16-07	2012-12-09	495321	X	-8.20		X	-52.53		250ml	6.93	1,761	
8	PZ-1	2022-12-13	495322	X	-7.38	-7.33	X	-48.31	-48.20	250ml	12.2	1,225	
9	PZ-2	2022-12-12	495323	X	-7.49		X	-51.38		250ml	12.8	5,657	
10	PZ-3	2022-12-13	495324	X	-7.43		X	-50.85		250ml	12.4	1,842	
11	PZ-4	2022-12-13	495325	X	-7.51		X	-49.92		250ml	11.6	732	
12	PZ-5	2022-12-13	495326	X	-6.95	-6.84	X	-48.02	-47.78	250ml	10.8	959	
13	P-01	2022-12-13	495327	X	-7.66		X	-53.18		250ml	7.84	669	
14	LE-01	2022-12-13	495328	X	-6.88		X	-49.86		250ml	8.41	207	
15	SW-001	2022-12-13	495329	X	-6.69		X	-47.60		250ml	9.22	776	
16	DUP-01	2022-12-12	495330	X	-7.79	-7.81	X	-51.64	-51.75	250ml	7.11	1,873	

ENVIRONMENTAL ISOTOPE LABORATORY

Miami Tritium Laboratory

UNIVERSITY
OF MIAMI

Rosenstiel School of Marine, Atmospheric, and Earth Science
Tritium Laboratory

4600 Rickenbacker Causeway
Miami, FL 33149-1031

P: 305-421-4100
F: 305-421-4112
tritium@miami.edu

March 14, 2023

TRITIUM LABORATORY

Data Release #23-012
Job # 4255

TRC Companies
TRITIUM SAMPLES

Dr. James D. Happell
Associate Research Professor

Distribution:
Vince Buening
1540 Eisenhower Place
Ann Arbor, MI 48108
vbuening@trccompanies.com

COMMENTS ON TRITIUM RESULTS (revision date 29 November 2016)

Tritium Scale New Half-life

Tritium concentrations are normally expressed in TU, where 1 TU indicates a T/H abundance ratio of 10^{-18}. The values refer to the tritium scale recommended by U.S. National Institute of Science and Technology (NIST, formerly NBS), and International Atomic Energy Agency (IAEA). The TU-numbers are based on the NIST tritium water standard #4926E. Age corrections and conversions are made using the recommended half-life of **12.32 years**, i.e., a decay rate of λ = 5.626% year^{-1}. In this scale, 1 TU is equivalent to 7.151 dpm/kg H_2O, or 3.222 pCi/kg H_2O, (equivalent to pCi/L in freshwater) or 0.1192 Bq/kg H_2O (Bq = disint/sec). We can also express tritium concentrations in pCi/L upon client request.

Tritium concentrations in TU or pCi/L are calculated for date of sample collection, REFDATE in the table, as provided by the submitter. If no such date is available, date of sample arrival at our laboratory is used.

The stated errors, eTU or err, are one standard deviation (1 sigma) including all conceivable contributions. In the table, QUANT is quantity of sample received, and ELYS is the amount of water taken for electrolytic enrichment. DIR means direct run (no enrichment).

Very low tritium values

In some cases, negative tritium values are listed. Such numbers can occur because the net tritium count rate is, in principle the difference between the count rate of the sample and that of a tritium-free sample (background count or blank sample). Given a set of "unknown" samples with no tritium, the distribution of net results should become symmetrical around 0 TU or pCi/L. The negative values are reported as such for the benefit of allowing the user unbiased statistical treatment of sets of the data. For other applications, 0 TU or pCi/L should be used.

Additional information

Refer to Services Rendered (Tritium), Section II.8, in the "Tritium Laboratory Price Schedule; Procedures and Standards; Advice on Sampling", and our Web-site www.rsmas.miami.edu/groups/tritium.

Tritium efficiencies and background values are somewhat different in each of the nine counters and values are corrected for cosmic intensity, gas pressure and other parameters. For tritium, the efficiency is typically 1.00 cpm per 100 TU (direct counting). At 50× enrichment, the efficiency is equivalent to 1.00 cpm per 2.4 TU. The background is typically 0.3 cpm, known to about ± 0.02 cpm. Our reported results include not only the Poisson statistics, but also other experimental uncertainties such as enrichment error, etc.

Client: TRC COMPANIES — Purchase Order: 193566
Recvd : 22/12/19 — Contact: Vince Buening 734-904-3302
Job# : 4255 — vbuening@trccomapnies.com — 1540 Eisenhower Place
Final : 23/03/14 — MONPP FAB — Ann Arbor, MI 48108

Cust LABEL INFO	JOB.SX	REFDATE	QUANT	ELYS	TU	eTU
MW-16-01	4255.01	221212	1000	275	0.06	0.09
MW-16-02	4255.02	221212	1000	275	-0.01	0.09
MW-16-03	4255.03	221212	1000	275	-0.06	0.09
MW-16-04 ORIGINAL	4255.04	221212	1000	275	3.28	0.10
MW-16-04 RERUN	4255.04	221212	1000	275	3.41	0.11
MW-16-04 AVERAGE	4255.04	221212	1000	275	3.34*	0.11
MW-16-05	4255.05	221212	1000	275	0.05	0.09
MW-16-06	4255.06	221212	1000	275	-0.05	0.09
MW-16-07	4255.07	221209	1000	275	-0.07	0.09
PZ-1	4255.08	221213	1000	275	6.32	0.21
PZ-2	4255.09	221212	1000	275	10.8	0.4
PZ-3	4255.10	221213	1000	275	10.2	0.3
PZ-4	4255.11	221213	1000	275	5.97	0.20
PZ-5	4255.12	221213	1000	275	5.92	0.20
P-01	4255.13	221213	1000	275	20.0	0.7
LE-01	4255.14	221213	1000	275	23.8	0.8
SW-001	4255.15	221213	1000	275	21.3	0.7
DUP-01	4255.16	221212	1000	275	-0.01	0.09

* Requested rerun agreed with original. Above value is the average of the duplicate runs.

Appendix B
Statistical Results

Lithium Two sample t Test (4/7/2023 11:55:47)

Descriptive Statistics

		N	Mean	SD	SEM	Median
Monroe CCR Unit Water		5	16.494	5.60041	2.50458	16.48
Uppermost Aquifer		7	12.86429	1.24086	0.469	13.22
	Difference		3.62971		2.14899	
	Overall	12	14.37667	3.96718	1.14523	13.855

Standard Error of Mean (SEM) of difference is computed under the condition that equal variance is assumed.

t-Test Statistics

	t Statistic	DF	Prob>t
Equal Variance Assumed	1.68903	10	0.06105
Equal Variance NOT Assumed (Welch Correction)	1.42447	4.28193	0.11146

Null Hypothesis: mean1-mean2 <= 0
Alternative Hypothesis: mean1-mean2 > 0
At 0.05 level, when equal variance is assumed, Mean1 - Mean2 is NOT significantly greater than 0
At 0.05 level, when equal variance is NOT assumed, Mean1 - Mean2 is NOT significantly greater than 0

Oxygen Two sample t Test (4/7/2023 11:57:22)

Descriptive Statistics

		N	Mean	SD	SEM	Median
I"Monroe CCR Unit Water"		5	-7.352	0.23048	0.10307	-7.43
J"Uppermost Aquifer"		7	-8.03	0.46339	0.17515	-7.86
	Difference		0.678		0.22685	
	Overall	12	-7.7475	0.50826	0.14672	-7.705

Standard Error of Mean (SEM) of difference is computed under the condition that equal variance is assumed.

t-Test Statistics

	t Statistic	DF	Prob>t
Equal Variance Assumed	2.98882	10	0.0068
Equal Variance NOT Assumed (Welch Correction)	3.33621	9.21727	0.00421

Null Hypothesis: mean1-mean2 <= 0
Alternative Hypothesis: mean1-mean2 > 0
At 0.05 level, when equal variance is assumed, Mean1 - Mean2 is significantly greater than 0
At 0.05 level, when equal variance is NOT assumed, Mean1 - Mean2 is significantly greater than 0

Hydrogen Two sample t Test (4/7/2023 11:56:57)

Descriptive Statistics

		N	Mean	SD	SEM	Median
G"Monroe CCR Unit Water"		5	-49.696	1.49564	0.66887	-49.92
H"Uppermost Aquifer"		7	-51.87857	1.98403	0.74989	-51.63
	Difference		2.18257		1.05667	
	Overall	12	-50.96917	2.05515	0.59327	-50.83

Standard Error of Mean (SEM) of difference is computed under the condition that equal variance is assumed.

t-Test Statistics

	t Statistic	DF	Prob>t
Equal Variance Assumed	2.06552	10	0.03289
Equal Variance NOT Assumed (Welch Correction)	2.17203	9.92328	0.02759

Null Hypothesis: mean1-mean2 <= 0
Alternative Hypothesis: mean1-mean2 > 0
At 0.05 level, when equal variance is assumed, Mean1 - Mean2 is significantly greater than 0
At 0.05 level, when equal variance is NOT assumed, Mean1 - Mean2 is significantly greater than 0

Strontium Two sample t Test (4/7/2023 11:56:42)

Descriptive Statistics

		N	Mean	SD	SEM	Median
E"Monroe CCR Unit Water"		5	0.71081	0.001	4.48859E-4	0.71069
F"Uppermost Aquifer"		7	0.70847	5.34522E-6	2.02031E-6	0.70847
	Difference		0.00234		3.71698E-4	
	Overall	12	0.70945	0.00135	3.88947E-4	0.70848

Standard Error of Mean (SEM) of difference is computed under the condition that equal variance is assumed.

t-Test Statistics

	t Statistic	DF	Prob>t
Equal Variance Assumed	6.28928	10	4.51643E-5
Equal Variance NOT Assumed (Welch Correction)	5.20808	4.00016	0.00324

Null Hypothesis: mean1-mean2 <= 0
Alternative Hypothesis: mean1-mean2 > 0
At 0.05 level, when equal variance is assumed, Mean1 - Mean2 is significantly greater than 0
At 0.05 level, when equal variance is NOT assumed, Mean1 - Mean2 is significantly greater than 0

Boron Two sample t Test (4/7/2023 11:56:19)

Descriptive Statistics

		N	Mean	SD	SEM	Median
C"Monroe CCR Unit Water"		5	-10.466	6.72699	3.0084	-11.37
D"Uppermost Aquifer"		7	3.00143	1.97127	0.74507	2.47
	Difference		-13.46743		2.64678	
	Overall	12	-2.61	8.16492	2.35701	0.975

Standard Error of Mean (SEM) of difference is computed under the condition that equal variance is assumed.

t-Test Statistics

	t Statistic	DF	Prob<t
Equal Variance Assumed	-5.08824	10	2.36034E-4
Equal Variance NOT Assumed (Welch Correction)	-4.34533	4.49447	0.00471

Null Hypothesis: mean1-mean2 >= 0
Alternative Hypothesis: mean1-mean2 < 0
At 0.05 level, when equal variance is assumed, Mean1 - Mean2 is significantly less than 0
At 0.05 level, when equal variance is NOT assumed, Mean1 - Mean2 is significantly less than 0

Appendix B
Laboratory Reports

ANALYTICAL REPORT

PREPARED FOR

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

Generated 4/25/2023 1:28:54 PM

JOB DESCRIPTION

CCR DTE Monroe Plant FAB/VEL

JOB NUMBER

240-183221-1

Eurofins Canton
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

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

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Qualifiers

Metals

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

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
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.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Job ID: 240-183221-1

Laboratory: Eurofins Canton

Narrative

Job Narrative
240-183221-1

Receipt
The samples were received on 4/8/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°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.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	EET CAN
6020	Metals (ICP/MS)	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

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.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-183221-1	MW-16-01	Water	04/06/23 10:40	04/08/23 08:00
240-183221-2	MW-16-02	Water	04/06/23 13:15	04/08/23 08:00
240-183221-3	MW-16-03	Water	04/06/23 12:21	04/08/23 08:00
240-183221-4	MW-16-04	Water	04/06/23 11:50	04/08/23 08:00
240-183221-5	MW-16-05	Water	04/06/23 11:18	04/08/23 08:00
240-183221-6	MW-16-06	Water	04/06/23 11:38	04/08/23 08:00
240-183221-7	MW-16-07	Water	04/06/23 12:57	04/08/23 08:00
240-183221-8	DUP-01	Water	04/06/23 00:00	04/08/23 08:00
240-183221-9	MP-001F	Water	04/06/23 12:10	04/08/23 08:00

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Plant FAB/VEL

Job ID: 240-183221-1

Client Sample ID: MW-16-01 — Lab Sample ID: 240-183221-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	290		100	100	ug/L	1		6010B	Total Recoverable
Calcium	370000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	150		100	100	ug/L	1		6020	Total Recoverable
Chloride	10		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.7		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1500		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2100		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-02 — Lab Sample ID: 240-183221-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	430		100	100	ug/L	1		6010B	Total Recoverable
Calcium	370000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	280		100	100	ug/L	1		6020	Total Recoverable
Chloride	13		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1500		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2200		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-03 — Lab Sample ID: 240-183221-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	480		100	100	ug/L	1		6010B	Total Recoverable
Calcium	390000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	1200		100	100	ug/L	1		6020	Total Recoverable
Chloride	19		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1600		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2300		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-04 — Lab Sample ID: 240-183221-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	180		100	100	ug/L	1		6010B	Total Recoverable
Calcium	480000		1000	1000	ug/L	1		6020	Total Recoverable
Chloride	34		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.98		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2100		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-05 — Lab Sample ID: 240-183221-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	240		100	100	ug/L	1		6010B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample ID: MW-16-05 (Continued)

Lab Sample ID: 240-183221-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	390000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	1000		100	100	ug/L	1		6020	Total Recoverable
Chloride	11		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2100		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-06

Lab Sample ID: 240-183221-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	360		100	100	ug/L	1		6010B	Total Recoverable
Calcium	370000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	650		100	100	ug/L	1		6020	Total Recoverable
Chloride	12		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1500		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2200		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-07

Lab Sample ID: 240-183221-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	230		100	100	ug/L	1		6010B	Total Recoverable
Calcium	380000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	770		100	100	ug/L	1		6020	Total Recoverable
Chloride	7.9		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2100		20	20	mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-01

Lab Sample ID: 240-183221-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	970		100	100	ug/L	1		6010B	Total Recoverable
Calcium	160000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	1500		100	100	ug/L	1		6020	Total Recoverable
Chloride	30		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.57		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	340		5.0	5.0	mg/L	5		9056A	Total/NA
Total Dissolved Solids	630		10	10	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MP-001F

Lab Sample ID: 240-183221-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	250		100	100	ug/L	1		6010B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Client Sample ID: MP-001F (Continued)
Lab Sample ID: 240-183221-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	380000		1000	1000	ug/L	1		6020	Total Recoverable
Iron	980		100	100	ug/L	1		6020	Total Recoverable
Chloride	11		1.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050	0.050	mg/L	1		9056A	Total/NA
Sulfate	1400		10	10	mg/L	10		9056A	Total/NA
Total Dissolved Solids	2100		20	20	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-01
Lab Sample ID: 240-183221-1
Date Collected: 04/06/23 10:40
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	290		100	100	ug/L		04/10/23 14:00	04/11/23 18:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	370000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:04	1
Iron	150		100	100	ug/L		04/10/23 14:00	04/12/23 18:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	10		1.0	1.0	mg/L			04/22/23 03:24	1
Fluoride (SW846 9056A)	1.7		0.050	0.050	mg/L			04/22/23 03:24	1
Sulfate (SW846 9056A)	1500		10	10	mg/L			04/22/23 03:44	10
Total Dissolved Solids (SM 2540C)	2100		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-02
Lab Sample ID: 240-183221-2
Date Collected: 04/06/23 13:15
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	430		100	100	ug/L		04/10/23 14:00	04/11/23 18:53	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	370000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:06	1
Iron	280		100	100	ug/L		04/10/23 14:00	04/12/23 19:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	13		1.0	1.0	mg/L			04/22/23 04:04	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			04/22/23 04:04	1
Sulfate (SW846 9056A)	1500		10	10	mg/L			04/22/23 04:24	10
Total Dissolved Solids (SM 2540C)	2200		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-03
Lab Sample ID: 240-183221-3
Date Collected: 04/06/23 12:21
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	480		100	100	ug/L		04/10/23 14:00	04/11/23 18:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	390000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:09	1
Iron	1200		100	100	ug/L		04/10/23 14:00	04/12/23 19:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	19		1.0	1.0	mg/L			04/22/23 04:44	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			04/22/23 04:44	1
Sulfate (SW846 9056A)	1600		10	10	mg/L			04/22/23 05:04	10
Total Dissolved Solids (SM 2540C)	2300		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-04
Lab Sample ID: 240-183221-4
Date Collected: 04/06/23 11:50
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	180		100	100	ug/L		04/10/23 14:00	04/11/23 19:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	480000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:12	1
Iron	100	U	100	100	ug/L		04/10/23 14:00	04/12/23 19:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	34		1.0	1.0	mg/L			04/22/23 05:24	1
Fluoride (SW846 9056A)	0.98		0.050	0.050	mg/L			04/22/23 05:24	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			04/22/23 05:45	10
Total Dissolved Solids (SM 2540C)	2100		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-05
Lab Sample ID: 240-183221-5
Date Collected: 04/06/23 11:18
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	240		100	100	ug/L		04/10/23 14:00	04/11/23 19:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	390000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:21	1
Iron	1000		100	100	ug/L		04/10/23 14:00	04/12/23 19:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	11		1.0	1.0	mg/L			04/22/23 06:45	1
Fluoride (SW846 9056A)	1.5		0.050	0.050	mg/L			04/22/23 06:45	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			04/22/23 07:05	10
Total Dissolved Solids (SM 2540C)	2100		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-06
Lab Sample ID: 240-183221-6
Date Collected: 04/06/23 11:38
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	360		100	100	ug/L		04/10/23 14:00	04/11/23 19:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	370000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:24	1
Iron	650		100	100	ug/L		04/10/23 14:00	04/12/23 19:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	12		1.0	1.0	mg/L			04/22/23 07:25	1
Fluoride (SW846 9056A)	1.6		0.050	0.050	mg/L			04/22/23 07:25	1
Sulfate (SW846 9056A)	1500		10	10	mg/L			04/22/23 07:45	10
Total Dissolved Solids (SM 2540C)	2200		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-07
Lab Sample ID: 240-183221-7
Date Collected: 04/06/23 12:57
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	230		100	100	ug/L		04/10/23 14:00	04/11/23 19:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	380000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:27	1
Iron	770		100	100	ug/L		04/10/23 14:00	04/12/23 19:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	7.9		1.0	1.0	mg/L			04/22/23 08:06	1
Fluoride (SW846 9056A)	1.5		0.050	0.050	mg/L			04/22/23 08:06	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			04/22/23 08:26	10
Total Dissolved Solids (SM 2540C)	2100		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: DUP-01
Lab Sample ID: 240-183221-8
Date Collected: 04/06/23 00:00
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	970		100	100	ug/L		04/10/23 14:00	04/11/23 19:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	160000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:30	1
Iron	1500		100	100	ug/L		04/10/23 14:00	04/12/23 19:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	30		1.0	1.0	mg/L			04/22/23 08:46	1
Fluoride (SW846 9056A)	0.57		0.050	0.050	mg/L			04/22/23 08:46	1
Sulfate (SW846 9056A)	340		5.0	5.0	mg/L			04/22/23 09:46	5
Total Dissolved Solids (SM 2540C)	630		10	10	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MP-001F
Lab Sample ID: 240-183221-9
Date Collected: 04/06/23 12:10
Matrix: Water
Date Received: 04/08/23 08:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	250		100	100	ug/L		04/10/23 14:00	04/11/23 19:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	380000		1000	1000	ug/L		04/10/23 14:00	04/11/23 22:33	1
Iron	980		100	100	ug/L		04/10/23 14:00	04/12/23 19:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	11		1.0	1.0	mg/L			04/22/23 10:47	1
Fluoride (SW846 9056A)	1.5		0.050	0.050	mg/L			04/22/23 10:47	1
Sulfate (SW846 9056A)	1400		10	10	mg/L			04/22/23 11:07	10
Total Dissolved Solids (SM 2540C)	2100		20	20	mg/L			04/12/23 13:30	1

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Plant FAB/VEL

Job ID: 240-183221-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 240-568709/1-A
Matrix: Water
Analysis Batch: 568985

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 568709

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 18:01	1

Lab Sample ID: LCS 240-568709/2-A
Matrix: Water
Analysis Batch: 568985

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 568709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	1000	1070		ug/L		107	80 - 120

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-568709/1-A
Matrix: Water
Analysis Batch: 569003

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 568709

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000	1000	ug/L		04/10/23 14:00	04/11/23 21:29	1

Lab Sample ID: MB 240-568709/1-A
Matrix: Water
Analysis Batch: 569177

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 568709

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	100	U	100	100	ug/L		04/10/23 14:00	04/12/23 18:50	1

Lab Sample ID: LCS 240-568709/3-A
Matrix: Water
Analysis Batch: 569003

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 568709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	25000	22800		ug/L		91	80 - 120

Lab Sample ID: LCS 240-568709/3-A
Matrix: Water
Analysis Batch: 569177

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 568709

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	5000	5240		ug/L		105	80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-570039/3
Matrix: Water
Analysis Batch: 570039

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			04/21/23 22:42	1
Fluoride	0.050	U	0.050	0.050	mg/L			04/21/23 22:42	1
Sulfate	1.0	U	1.0	1.0	mg/L			04/21/23 22:42	1

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

Lab Sample ID: LCS 240-570039/4
Matrix: Water
Analysis Batch: 570039

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	50.6		mg/L		101	90 - 110		
Fluoride			2.50	2.61		mg/L		105	90 - 110		
Sulfate			50.0	51.8		mg/L		104	90 - 110		

Lab Sample ID: 240-183221-8 MS
Matrix: Water
Analysis Batch: 570039

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	30		50.0	83.6		mg/L		107	80 - 120		
Fluoride	0.57		2.50	3.41		mg/L		114	80 - 120		
Sulfate	340	E	50.0	382	E 4	mg/L		85	80 - 120		

Lab Sample ID: 240-183221-8 MSD
Matrix: Water
Analysis Batch: 570039

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	30		50.0	83.9		mg/L		107	80 - 120	0	15
Fluoride	0.57		2.50	3.41		mg/L		114	80 - 120	0	15
Sulfate	340	E	50.0	382	E 4	mg/L		86	80 - 120	0	15

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

Lab Sample ID: MB 240-569105/1
Matrix: Water
Analysis Batch: 569105

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			04/12/23 13:30	1

Lab Sample ID: LCS 240-569105/2
Matrix: Water
Analysis Batch: 569105

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	550		mg/L		95	80 - 120		

Lab Sample ID: 240-183221-4 DU
Matrix: Water
Analysis Batch: 569105

Client Sample ID: MW-16-04
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	2100			2090		mg/L				0.1	20

Metals

Prep Batch: 568709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-1	MW-16-01	Total Recoverable	Water	3005A	
240-183221-2	MW-16-02	Total Recoverable	Water	3005A	
240-183221-3	MW-16-03	Total Recoverable	Water	3005A	
240-183221-4	MW-16-04	Total Recoverable	Water	3005A	
240-183221-5	MW-16-05	Total Recoverable	Water	3005A	
240-183221-6	MW-16-06	Total Recoverable	Water	3005A	
240-183221-7	MW-16-07	Total Recoverable	Water	3005A	
240-183221-8	DUP-01	Total Recoverable	Water	3005A	
240-183221-9	MP-001F	Total Recoverable	Water	3005A	
MB 240-568709/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-568709/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-568709/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 568985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-1	MW-16-01	Total Recoverable	Water	6010B	568709
240-183221-2	MW-16-02	Total Recoverable	Water	6010B	568709
240-183221-3	MW-16-03	Total Recoverable	Water	6010B	568709
240-183221-4	MW-16-04	Total Recoverable	Water	6010B	568709
240-183221-5	MW-16-05	Total Recoverable	Water	6010B	568709
240-183221-6	MW-16-06	Total Recoverable	Water	6010B	568709
240-183221-7	MW-16-07	Total Recoverable	Water	6010B	568709
240-183221-8	DUP-01	Total Recoverable	Water	6010B	568709
240-183221-9	MP-001F	Total Recoverable	Water	6010B	568709
MB 240-568709/1-A	Method Blank	Total Recoverable	Water	6010B	568709
LCS 240-568709/2-A	Lab Control Sample	Total Recoverable	Water	6010B	568709

Analysis Batch: 569003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-1	MW-16-01	Total Recoverable	Water	6020	568709
240-183221-2	MW-16-02	Total Recoverable	Water	6020	568709
240-183221-3	MW-16-03	Total Recoverable	Water	6020	568709
240-183221-4	MW-16-04	Total Recoverable	Water	6020	568709
240-183221-5	MW-16-05	Total Recoverable	Water	6020	568709
240-183221-6	MW-16-06	Total Recoverable	Water	6020	568709
240-183221-7	MW-16-07	Total Recoverable	Water	6020	568709
240-183221-8	DUP-01	Total Recoverable	Water	6020	568709
240-183221-9	MP-001F	Total Recoverable	Water	6020	568709
MB 240-568709/1-A	Method Blank	Total Recoverable	Water	6020	568709
LCS 240-568709/3-A	Lab Control Sample	Total Recoverable	Water	6020	568709

Analysis Batch: 569177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-1	MW-16-01	Total Recoverable	Water	6020	568709
240-183221-2	MW-16-02	Total Recoverable	Water	6020	568709
240-183221-3	MW-16-03	Total Recoverable	Water	6020	568709
240-183221-4	MW-16-04	Total Recoverable	Water	6020	568709
240-183221-5	MW-16-05	Total Recoverable	Water	6020	568709
240-183221-6	MW-16-06	Total Recoverable	Water	6020	568709
240-183221-7	MW-16-07	Total Recoverable	Water	6020	568709
240-183221-8	DUP-01	Total Recoverable	Water	6020	568709

Metals (Continued)

Analysis Batch: 569177 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-9	MP-001F	Total Recoverable	Water	6020	568709
MB 240-568709/1-A	Method Blank	Total Recoverable	Water	6020	568709
LCS 240-568709/3-A	Lab Control Sample	Total Recoverable	Water	6020	568709

General Chemistry

Analysis Batch: 569105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-1	MW-16-01	Total/NA	Water	SM 2540C	
240-183221-2	MW-16-02	Total/NA	Water	SM 2540C	
240-183221-3	MW-16-03	Total/NA	Water	SM 2540C	
240-183221-4	MW-16-04	Total/NA	Water	SM 2540C	
240-183221-5	MW-16-05	Total/NA	Water	SM 2540C	
240-183221-6	MW-16-06	Total/NA	Water	SM 2540C	
240-183221-7	MW-16-07	Total/NA	Water	SM 2540C	
240-183221-8	DUP-01	Total/NA	Water	SM 2540C	
240-183221-9	MP-001F	Total/NA	Water	SM 2540C	
MB 240-569105/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-569105/2	Lab Control Sample	Total/NA	Water	SM 2540C	
240-183221-4 DU	MW-16-04	Total/NA	Water	SM 2540C	

Analysis Batch: 570039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-183221-1	MW-16-01	Total/NA	Water	9056A	
240-183221-1	MW-16-01	Total/NA	Water	9056A	
240-183221-2	MW-16-02	Total/NA	Water	9056A	
240-183221-2	MW-16-02	Total/NA	Water	9056A	
240-183221-3	MW-16-03	Total/NA	Water	9056A	
240-183221-3	MW-16-03	Total/NA	Water	9056A	
240-183221-4	MW-16-04	Total/NA	Water	9056A	
240-183221-4	MW-16-04	Total/NA	Water	9056A	
240-183221-5	MW-16-05	Total/NA	Water	9056A	
240-183221-5	MW-16-05	Total/NA	Water	9056A	
240-183221-6	MW-16-06	Total/NA	Water	9056A	
240-183221-6	MW-16-06	Total/NA	Water	9056A	
240-183221-7	MW-16-07	Total/NA	Water	9056A	
240-183221-7	MW-16-07	Total/NA	Water	9056A	
240-183221-8	DUP-01	Total/NA	Water	9056A	
240-183221-8	DUP-01	Total/NA	Water	9056A	
240-183221-9	MP-001F	Total/NA	Water	9056A	
240-183221-9	MP-001F	Total/NA	Water	9056A	
MB 240-570039/3	Method Blank	Total/NA	Water	9056A	
LCS 240-570039/4	Lab Control Sample	Total/NA	Water	9056A	
240-183221-8 MS	DUP-01	Total/NA	Water	9056A	
240-183221-8 MSD	DUP-01	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-01
Lab Sample ID: 240-183221-1
Date Collected: 04/06/23 10:40
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 18:48
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:04
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 18:58
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 03:24
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 03:44
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: MW-16-02
Lab Sample ID: 240-183221-2
Date Collected: 04/06/23 13:15
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 18:53
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:06
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:01
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 04:04
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 04:24
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: MW-16-03
Lab Sample ID: 240-183221-3
Date Collected: 04/06/23 12:21
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 18:57
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:09
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:04
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 04:44
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 05:04
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: MW-16-04
Lab Sample ID: 240-183221-4

Date Collected: 04/06/23 11:50
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 19:02
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:12
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:07
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 05:24
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 05:45
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: MW-16-05
Lab Sample ID: 240-183221-5

Date Collected: 04/06/23 11:18
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 19:06
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:21
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:10
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 06:45
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 07:05
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: MW-16-06
Lab Sample ID: 240-183221-6

Date Collected: 04/06/23 11:38
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 19:11
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:24
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:13
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 07:25
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 07:45
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Lab Chronicle

Client: TRC Environmental Corporation.
Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

Client Sample ID: MW-16-07
Lab Sample ID: 240-183221-7
Date Collected: 04/06/23 12:57
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 19:24
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:27
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:16
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 08:06
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 08:26
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: DUP-01
Lab Sample ID: 240-183221-8
Date Collected: 04/06/23 00:00
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 19:28
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:30
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:25
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 08:46
Total/NA	Analysis	9056A		5	570039	JMB	EET CAN	04/22/23 09:46
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

Client Sample ID: MP-001F
Lab Sample ID: 240-183221-9
Date Collected: 04/06/23 12:10
Matrix: Water
Date Received: 04/08/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6010B		1	568985	AJC	EET CAN	04/11/23 19:32
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569003	RKT	EET CAN	04/11/23 22:33
Total Recoverable	Prep	3005A			568709	MRL	EET CAN	04/10/23 14:00
Total Recoverable	Analysis	6020		1	569177	RKT	EET CAN	04/12/23 19:28
Total/NA	Analysis	9056A		1	570039	JMB	EET CAN	04/22/23 10:47
Total/NA	Analysis	9056A		10	570039	JMB	EET CAN	04/22/23 11:07
Total/NA	Analysis	SM 2540C		1	569105	GH	EET CAN	04/12/23 13:30

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. Job ID: 240-183221-1
Project/Site: CCR DTE Monroe Plant FAB/VEL

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.

Eurofins Canton
180 S. Van Buren Avenue
Barberton, OH 44203
Phone (330) 497-9396 Phone (330) 497-0772

MICHIGAN 190

1.3/1.4

Chain of Custody Record

MICHIGAN 190

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Client Information	Sampler: Henry Schnaufer	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 240-106115-31715.1
Client Contact: ~~Chris Scieszka~~ Vince Bushong	Phone: 734 646 5328	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested:			
City: Ann Arbor	TAT Requested (days): Standard			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: 164683			
Email: CScieszka@trccompanies.com	WO #: 518728.0001.0000			
Project Name: CCR DTE Monroe Plant FAB/VEL	Project #: 24016830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate	6010B Boron, 6020 Calcium, Iron	Special Instructions/Note:
			Preservation Code:				N	N	D	
MW-16-01	4/6/23	1040	G	Water	N	N				
MW-16-02		1315		Water						
MW-16-03		1221		Water						
MW-16-04		1150		Water						
MW-16-05		1118		Water						
MW-16-06		1152		Water						
MW-16-07		1257		Water						
DUP-01		—		Water						
MP-001F		1210		Water						
				Water						

240-183221 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Henry Schnaufer	4/6/23 1500	TRC	Trey Stevens	4/6/23 1500	TRC
2		4/7/23 1238	TRC		4/7/23 1238	
3		4/7/23 1345			4-8-23 8:00	

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

Ver: 01/16/2019

4/25/2023

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

Client TRC Site Name _____ Cooler unpacked by: Mandy

Cooler Received on 4-8-23 Opened on 4-8-23

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # 6ENC 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 # 17 (CF +1 °C) Observed Cooler Temp. 1.3 °C Corrected Cooler Temp. 1.4 °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)	
-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)?	(Y) (N) (Y)	
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# **HC203864**
14. Were VOAs on the COC?	Yes (No)	
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ 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)	

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: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservative Added (mls)	Lot #
MW-16-01	240-183221-C-1	Plastic 500ml - with Nitric Acid	<2			
MW-16-02	240-183221-C-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-03	240-183221-C-3	Plastic 500ml - with Nitric Acid	<2			
MW-16-04	240-183221-C-4	Plastic 500ml - with Nitric Acid	<2			
MW-16-05	240-183221-C-5	Plastic 500ml - with Nitric Acid	<2			
MW-16-06	240-183221-C-6	Plastic 500ml - with Nitric Acid	<2			
MW-16-07	240-183221-C-7	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-183221-C-8	Plastic 500ml - with Nitric Acid	<2			
MP-001F	240-183221-C-9	Plastic 500ml - with Nitric Acid	<2			

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ANALYTICAL REPORT

PREPARED FOR

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

Generated 12/5/2023 1:47:07 PM Revision 2

JOB DESCRIPTION

CCR DTE Monroe Power Plant FAB

JOB NUMBER

240-194468-2

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton OH 44203

See page two for job notes and contact information.

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

Generated
12/5/2023 1:47:07 PM
Revision 2

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

Table of Contents

Definitions/Glossary

Client: TRC Environmental Corporation. Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

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

Job ID: 240-194468-2

Laboratory: Eurofins Cleveland

Narrative

Job Narrative
240-194468-2

REVISION

The report being provided is a revision of the original report sent on 11/7/2023. 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 10/28/2023 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 3 coolers at receipt time were 0.2°C, 0.5°C and 1.7°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. Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

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.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-194468-1	MW-16-01	Water	10/25/23 11:05	10/28/23 08:00
240-194468-2	MW-16-02	Water	10/24/23 15:16	10/28/23 08:00
240-194468-3	MW-16-03	Water	10/24/23 14:38	10/28/23 08:00
240-194468-4	MW-16-04	Water	10/24/23 13:11	10/28/23 08:00
240-194468-5	MW-16-05	Water	10/24/23 13:59	10/28/23 08:00
240-194468-6	MW-16-06	Water	10/25/23 14:30	10/28/23 08:00
240-194468-7	MW-16-07	Water	10/25/23 09:44	10/28/23 08:00
240-194468-8	DUP-01	Water	10/25/23 00:00	10/28/23 08:00
240-194468-9	MP-001F	Water	10/25/23 15:19	10/28/23 08:00

Detection Summary

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-01 — Lab Sample ID: 240-194468-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	260		100		ug/L	1		6010D	Total Recoverable
Calcium	400000		1000		ug/L	1		6020B	Total Recoverable
Iron	110		100		ug/L	1		6020B	Total Recoverable
Chloride	9.9		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.6		0.050		mg/L	1		9056A	Total/NA
Sulfate	1500		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	2000		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-02 — Lab Sample ID: 240-194468-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	390		100		ug/L	1		6010D	Total Recoverable
Calcium	390000		1000		ug/L	1		6020B	Total Recoverable
Iron	240		100		ug/L	1		6020B	Total Recoverable
Chloride	13		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050		mg/L	1		9056A	Total/NA
Sulfate	1600		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	2100		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-03 — Lab Sample ID: 240-194468-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	400		100		ug/L	1		6010D	Total Recoverable
Calcium	380000		1000		ug/L	1		6020B	Total Recoverable
Iron	820		100		ug/L	1		6020B	Total Recoverable
Chloride	19		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050		mg/L	1		9056A	Total/NA
Sulfate	1700		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	2400		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-04 — Lab Sample ID: 240-194468-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	150		100		ug/L	1		6010D	Total Recoverable
Calcium	470000		1000		ug/L	1		6020B	Total Recoverable
Chloride	35		1.0		mg/L	1		9056A	Total/NA
Fluoride	0.99		0.050		mg/L	1		9056A	Total/NA
Sulfate	1400		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	2000		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-05 — Lab Sample ID: 240-194468-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	210		100		ug/L	1		6010D	Total Recoverable

This Detection Summary does not include radiochemical test results.

Eurofins Cleveland

Client Sample ID: MW-16-05 (Continued) — Lab Sample ID: 240-194468-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Calcium	390000		1000		ug/L	1		6020B	Total Recoverable
Iron	880		100		ug/L	1		6020B	Total Recoverable
Chloride	11		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050		mg/L	1		9056A	Total/NA
Sulfate	1400		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1900		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-06 — Lab Sample ID: 240-194468-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	270		100		ug/L	1		6010D	Total Recoverable
Calcium	340000		1000		ug/L	1		6020B	Total Recoverable
Iron	540		100		ug/L	1		6020B	Total Recoverable
Chloride	11		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.5		0.050		mg/L	1		9056A	Total/NA
Sulfate	1500		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1900		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-16-07 — Lab Sample ID: 240-194468-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	170		100		ug/L	1		6010D	Total Recoverable
Calcium	360000		1000		ug/L	1		6020B	Total Recoverable
Iron	640		100		ug/L	1		6020B	Total Recoverable
Chloride	7.2		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.3		0.050		mg/L	1		9056A	Total/NA
Sulfate	1400		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1900		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: DUP-01 — Lab Sample ID: 240-194468-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	150		100		ug/L	1		6010D	Total Recoverable
Calcium	320000		1000		ug/L	1		6020B	Total Recoverable
Iron	570		100		ug/L	1		6020B	Total Recoverable
Chloride	7.0		1.0		mg/L	1		9056A	Total/NA
Fluoride	1.3		0.050		mg/L	1		9056A	Total/NA
Sulfate	1400		10		mg/L	10		9056A	Total/NA
Total Dissolved Solids	1900		20		mg/L	1		SM 2540C	Total/NA

Client Sample ID: MP-001F — Lab Sample ID: 240-194468-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Boron	880		100		ug/L	1		6010D	Total Recoverable

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Power Plant FAB

Job ID: 240-194468-2

Client Sample ID: MP-001F (Continued)

Lab Sample ID: 240-194468-9

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Calcium	100000		1000		ug/L	1		6020B	Total Recoverable
Chloride	23		1.0		mg/L	1		9056A	Total/NA
Fluoride	0.40		0.050		mg/L	1		9056A	Total/NA
Sulfate	290		5.0		mg/L	5		9056A	Total/NA
Total Dissolved Solids	500		10		mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-01
Lab Sample ID: 240-194468-1

Date Collected: 10/25/23 11:05
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	260		100		ug/L		10/31/23 14:00	11/01/23 14:04	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	400000		1000		ug/L		10/31/23 14:00	11/01/23 12:35	1
Iron	110		100		ug/L		10/31/23 14:00	11/01/23 12:35	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	9.9		1.0		mg/L			11/05/23 16:36	1
Fluoride (SW846 9056A)	1.6		0.050		mg/L			11/05/23 16:36	1
Sulfate (SW846 9056A)	1500		10		mg/L			11/05/23 17:41	10
Total Dissolved Solids (SM 2540C)	2000		20		mg/L			11/01/23 09:05	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-02
Lab Sample ID: 240-194468-2

Date Collected: 10/24/23 15:16
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	390		100		ug/L		10/31/23 14:00	11/01/23 14:09	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	390000		1000		ug/L		10/31/23 14:00	11/01/23 12:38	1
Iron	240		100		ug/L		10/31/23 14:00	11/01/23 12:38	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	13		1.0		mg/L			11/04/23 05:36	1
Fluoride (SW846 9056A)	1.5		0.050		mg/L			11/04/23 05:36	1
Sulfate (SW846 9056A)	1600		10		mg/L			11/04/23 05:56	10
Total Dissolved Solids (SM 2540C)	2100		20		mg/L			10/31/23 07:09	1

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-03
Lab Sample ID: 240-194468-3
Date Collected: 10/24/23 14:38
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	400		100		ug/L		10/31/23 14:00	11/01/23 14:13	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	380000		1000		ug/L		10/31/23 14:00	11/01/23 12:40	1
Iron	820		100		ug/L		10/31/23 14:00	11/01/23 12:40	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	19		1.0		mg/L			11/04/23 06:16	1
Fluoride (SW846 9056A)	1.5		0.050		mg/L			11/04/23 06:16	1
Sulfate (SW846 9056A)	1700		10		mg/L			11/04/23 06:37	10
Total Dissolved Solids (SM 2540C)	2400		20		mg/L			10/31/23 07:09	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-04
Lab Sample ID: 240-194468-4

Date Collected: 10/24/23 13:11
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	150		100		ug/L		10/31/23 14:00	11/01/23 14:18	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	470000		1000		ug/L		10/31/23 14:00	11/01/23 12:43	1
Iron	100	U	100		ug/L		10/31/23 14:00	11/01/23 12:43	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	35		1.0		mg/L			11/04/23 06:57	1
Fluoride (SW846 9056A)	0.99		0.050		mg/L			11/04/23 06:57	1
Sulfate (SW846 9056A)	1400		10		mg/L			11/04/23 07:17	10
Total Dissolved Solids (SM 2540C)	2000		20		mg/L			10/31/23 07:09	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-05
Lab Sample ID: 240-194468-5

Date Collected: 10/24/23 13:59
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	210		100		ug/L		10/31/23 14:00	11/01/23 14:22	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	390000		1000		ug/L		10/31/23 14:00	11/01/23 12:45	1
Iron	880		100		ug/L		10/31/23 14:00	11/01/23 12:45	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	11		1.0		mg/L			11/04/23 07:37	1
Fluoride (SW846 9056A)	1.5		0.050		mg/L			11/04/23 07:37	1
Sulfate (SW846 9056A)	1400		10		mg/L			11/04/23 08:37	10
Total Dissolved Solids (SM 2540C)	1900		20		mg/L			10/31/23 07:09	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-06
Lab Sample ID: 240-194468-6

Date Collected: 10/25/23 14:30
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	270		100		ug/L		10/31/23 14:00	11/01/23 14:27	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	340000		1000		ug/L		10/31/23 14:00	11/01/23 12:53	1
Iron	540		100		ug/L		10/31/23 14:00	11/01/23 12:53	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	11		1.0		mg/L			11/05/23 18:03	1
Fluoride (SW846 9056A)	1.5		0.050		mg/L			11/05/23 18:03	1
Sulfate (SW846 9056A)	1500		10		mg/L			11/05/23 18:24	10
Total Dissolved Solids (SM 2540C)	1900		20		mg/L			11/01/23 09:05	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MW-16-07
Lab Sample ID: 240-194468-7

Date Collected: 10/25/23 09:44
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	170		100		ug/L		10/31/23 14:00	11/01/23 14:31	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	360000		1000		ug/L		10/31/23 14:00	11/01/23 12:55	1
Iron	640		100		ug/L		10/31/23 14:00	11/01/23 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	7.2		1.0		mg/L			11/05/23 22:01	1
Fluoride (SW846 9056A)	1.3		0.050		mg/L			11/05/23 22:01	1
Sulfate (SW846 9056A)	1400		10		mg/L			11/05/23 22:23	10
Total Dissolved Solids (SM 2540C)	1900		20		mg/L			11/01/23 09:05	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: DUP-01
Lab Sample ID: 240-194468-8

Date Collected: 10/25/23 00:00
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	150		100		ug/L		10/31/23 14:00	11/01/23 14:44	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	320000		1000		ug/L		10/31/23 14:00	11/01/23 12:58	1
Iron	570		100		ug/L		10/31/23 14:00	11/01/23 12:58	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	7.0		1.0		mg/L			11/05/23 20:34	1
Fluoride (SW846 9056A)	1.3		0.050		mg/L			11/05/23 20:34	1
Sulfate (SW846 9056A)	1400		10		mg/L			11/05/23 20:56	10
Total Dissolved Solids (SM 2540C)	1900		20		mg/L			11/01/23 09:05	1

Client Sample Results

Client: TRC Environmental Corporation.
Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

Client Sample ID: MP-001F
Lab Sample ID: 240-194468-9
Date Collected: 10/25/23 15:19
Matrix: Water
Date Received: 10/28/23 08:00

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	880		100		ug/L		10/31/23 14:00	11/01/23 14:49	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	100000		1000		ug/L		10/31/23 14:00	11/01/23 13:00	1
Iron	100	U	100		ug/L		10/31/23 14:00	11/01/23 13:00	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride (SW846 9056A)	23		1.0		mg/L			11/05/23 11:32	1
Fluoride (SW846 9056A)	0.40		0.050		mg/L			11/05/23 11:32	1
Sulfate (SW846 9056A)	290		5.0		mg/L			11/05/23 11:54	5
Total Dissolved Solids (SM 2540C)	500		10		mg/L			11/01/23 09:05	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-592866/1-A
Matrix: Water
Analysis Batch: 593041

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592866

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Boron	100	U	100		ug/L		10/31/23 14:00	11/01/23 13:22	1

Lab Sample ID: LCS 240-592866/2-A
Matrix: Water
Analysis Batch: 593041

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592866

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron			1000	958		ug/L		96	80 - 120		

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 240-592866/1-A
Matrix: Water
Analysis Batch: 593128

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 592866

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Calcium	1000	U	1000		ug/L		10/31/23 14:00	11/01/23 12:09	1
Iron	100	U	100		ug/L		10/31/23 14:00	11/01/23 12:09	1

Lab Sample ID: LCS 240-592866/3-A
Matrix: Water
Analysis Batch: 593128

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 592866

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Calcium			25000	24000		ug/L		96	80 - 120		
Iron			5000	4720		ug/L		94	80 - 120		

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 240-593360/3
Matrix: Water
Analysis Batch: 593360

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			11/05/23 09:00	1
Fluoride	0.050	U	0.050		mg/L			11/05/23 09:00	1
Sulfate	1.0	U	1.0		mg/L			11/05/23 09:00	1

Lab Sample ID: LCS 240-593360/4
Matrix: Water
Analysis Batch: 593360

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	49.4		mg/L		99	90 - 110		
Fluoride			2.50	2.57		mg/L		103	90 - 110		
Sulfate			50.0	50.9		mg/L		102	90 - 110		

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

Lab Sample ID: MB 240-593364/3
Matrix: Water
Analysis Batch: 593364

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			11/04/23 00:34	1
Fluoride	0.050	U	0.050		mg/L			11/04/23 00:34	1
Sulfate	1.0	U	1.0		mg/L			11/04/23 00:34	1

Lab Sample ID: LCS 240-593364/4
Matrix: Water
Analysis Batch: 593364

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	51.1		mg/L		102	90 - 110		
Fluoride			2.50	2.64		mg/L		105	90 - 110		
Sulfate			50.0	53.5		mg/L		107	90 - 110		

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

Lab Sample ID: MB 240-592800/1
Matrix: Water
Analysis Batch: 592800

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			10/31/23 07:09	1
Total Dissolved Solids	10	U	10		mg/L			10/31/23 07:09	1

Lab Sample ID: LCS 240-592800/2
Matrix: Water
Analysis Batch: 592800

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	317		mg/L		94	80 - 120		
Total Dissolved Solids			336	317		mg/L		94	80 - 120		

Lab Sample ID: MB 240-592988/1
Matrix: Water
Analysis Batch: 592988

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			11/01/23 09:05	1
Total Dissolved Solids	10	U	10		mg/L			11/01/23 09:05	1

Lab Sample ID: LCS 240-592988/2
Matrix: Water
Analysis Batch: 592988

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	287		mg/L		85	80 - 120		
Total Dissolved Solids			336	287		mg/L		85	80 - 120		

Metals

Prep Batch: 592866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-1	MW-16-01	Total Recoverable	Water	3005A	
240-194468-2	MW-16-02	Total Recoverable	Water	3005A	
240-194468-3	MW-16-03	Total Recoverable	Water	3005A	
240-194468-4	MW-16-04	Total Recoverable	Water	3005A	
240-194468-5	MW-16-05	Total Recoverable	Water	3005A	
240-194468-6	MW-16-06	Total Recoverable	Water	3005A	
240-194468-7	MW-16-07	Total Recoverable	Water	3005A	
240-194468-8	DUP-01	Total Recoverable	Water	3005A	
240-194468-9	MP-001F	Total Recoverable	Water	3005A	
MB 240-592866/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-592866/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCS 240-592866/3-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 593041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-1	MW-16-01	Total Recoverable	Water	6010D	592866
240-194468-2	MW-16-02	Total Recoverable	Water	6010D	592866
240-194468-3	MW-16-03	Total Recoverable	Water	6010D	592866
240-194468-4	MW-16-04	Total Recoverable	Water	6010D	592866
240-194468-5	MW-16-05	Total Recoverable	Water	6010D	592866
240-194468-6	MW-16-06	Total Recoverable	Water	6010D	592866
240-194468-7	MW-16-07	Total Recoverable	Water	6010D	592866
240-194468-8	DUP-01	Total Recoverable	Water	6010D	592866
240-194468-9	MP-001F	Total Recoverable	Water	6010D	592866
MB 240-592866/1-A	Method Blank	Total Recoverable	Water	6010D	592866
LCS 240-592866/2-A	Lab Control Sample	Total Recoverable	Water	6010D	592866

Analysis Batch: 593128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-1	MW-16-01	Total Recoverable	Water	6020B	592866
240-194468-2	MW-16-02	Total Recoverable	Water	6020B	592866
240-194468-3	MW-16-03	Total Recoverable	Water	6020B	592866
240-194468-4	MW-16-04	Total Recoverable	Water	6020B	592866
240-194468-5	MW-16-05	Total Recoverable	Water	6020B	592866
240-194468-6	MW-16-06	Total Recoverable	Water	6020B	592866
240-194468-7	MW-16-07	Total Recoverable	Water	6020B	592866
240-194468-8	DUP-01	Total Recoverable	Water	6020B	592866
240-194468-9	MP-001F	Total Recoverable	Water	6020B	592866
MB 240-592866/1-A	Method Blank	Total Recoverable	Water	6020B	592866
LCS 240-592866/3-A	Lab Control Sample	Total Recoverable	Water	6020B	592866

General Chemistry

Analysis Batch: 592800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-2	MW-16-02	Total/NA	Water	SM 2540C	
240-194468-3	MW-16-03	Total/NA	Water	SM 2540C	
240-194468-4	MW-16-04	Total/NA	Water	SM 2540C	
240-194468-5	MW-16-05	Total/NA	Water	SM 2540C	
MB 240-592800/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-592800/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Client: TRC Environmental Corporation. Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

General Chemistry

Analysis Batch: 592988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-1	MW-16-01	Total/NA	Water	SM 2540C	
240-194468-6	MW-16-06	Total/NA	Water	SM 2540C	
240-194468-7	MW-16-07	Total/NA	Water	SM 2540C	
240-194468-8	DUP-01	Total/NA	Water	SM 2540C	
240-194468-9	MP-001F	Total/NA	Water	SM 2540C	
MB 240-592988/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 240-592988/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 593360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-1	MW-16-01	Total/NA	Water	9056A	
240-194468-1	MW-16-01	Total/NA	Water	9056A	
240-194468-6	MW-16-06	Total/NA	Water	9056A	
240-194468-6	MW-16-06	Total/NA	Water	9056A	
240-194468-7	MW-16-07	Total/NA	Water	9056A	
240-194468-7	MW-16-07	Total/NA	Water	9056A	
240-194468-8	DUP-01	Total/NA	Water	9056A	
240-194468-8	DUP-01	Total/NA	Water	9056A	
240-194468-9	MP-001F	Total/NA	Water	9056A	
240-194468-9	MP-001F	Total/NA	Water	9056A	
MB 240-593360/3	Method Blank	Total/NA	Water	9056A	
LCS 240-593360/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 593364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-194468-2	MW-16-02	Total/NA	Water	9056A	
240-194468-2	MW-16-02	Total/NA	Water	9056A	
240-194468-3	MW-16-03	Total/NA	Water	9056A	
240-194468-3	MW-16-03	Total/NA	Water	9056A	
240-194468-4	MW-16-04	Total/NA	Water	9056A	
240-194468-4	MW-16-04	Total/NA	Water	9056A	
240-194468-5	MW-16-05	Total/NA	Water	9056A	
240-194468-5	MW-16-05	Total/NA	Water	9056A	
MB 240-593364/3	Method Blank	Total/NA	Water	9056A	
LCS 240-593364/4	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Power Plant FAB

Job ID: 240-194468-2

Client Sample ID: MW-16-01

Date Collected: 10/25/23 11:05
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:04
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:35
Total/NA	Analysis	9056A		1	593360	JWW	EET CLE	11/05/23 16:36
Total/NA	Analysis	9056A		10	593360	JWW	EET CLE	11/05/23 17:41
Total/NA	Analysis	SM 2540C		1	592988	QUY8	EET CLE	11/01/23 09:05

Client Sample ID: MW-16-02

Date Collected: 10/24/23 15:16
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:09
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:38
Total/NA	Analysis	9056A		1	593364	JWW	EET CLE	11/04/23 05:36
Total/NA	Analysis	9056A		10	593364	JWW	EET CLE	11/04/23 05:56
Total/NA	Analysis	SM 2540C		1	592800	QUY8	EET CLE	10/31/23 07:09

Client Sample ID: MW-16-03

Date Collected: 10/24/23 14:38
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:13
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:40
Total/NA	Analysis	9056A		1	593364	JWW	EET CLE	11/04/23 06:16
Total/NA	Analysis	9056A		10	593364	JWW	EET CLE	11/04/23 06:37
Total/NA	Analysis	SM 2540C		1	592800	QUY8	EET CLE	10/31/23 07:09

Client Sample ID: MW-16-04

Date Collected: 10/24/23 13:11
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:18
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:43
Total/NA	Analysis	9056A		1	593364	JWW	EET CLE	11/04/23 06:57

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Power Plant FAB

Job ID: 240-194468-2

Client Sample ID: MW-16-04

Date Collected: 10/24/23 13:11
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	9056A		10	593364	JWW	EET CLE	11/04/23 07:17
Total/NA	Analysis	SM 2540C		1	592800	QUY8	EET CLE	10/31/23 07:09

Client Sample ID: MW-16-05

Date Collected: 10/24/23 13:59
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:22
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:45
Total/NA	Analysis	9056A		1	593364	JWW	EET CLE	11/04/23 07:37
Total/NA	Analysis	9056A		10	593364	JWW	EET CLE	11/04/23 08:37
Total/NA	Analysis	SM 2540C		1	592800	QUY8	EET CLE	10/31/23 07:09

Client Sample ID: MW-16-06

Date Collected: 10/25/23 14:30
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:27
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:53
Total/NA	Analysis	9056A		1	593360	JWW	EET CLE	11/05/23 18:03
Total/NA	Analysis	9056A		10	593360	JWW	EET CLE	11/05/23 18:24
Total/NA	Analysis	SM 2540C		1	592988	QUY8	EET CLE	11/01/23 09:05

Client Sample ID: MW-16-07

Date Collected: 10/25/23 09:44
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:31
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:55
Total/NA	Analysis	9056A		1	593360	JWW	EET CLE	11/05/23 22:01
Total/NA	Analysis	9056A		10	593360	JWW	EET CLE	11/05/23 22:23
Total/NA	Analysis	SM 2540C		1	592988	QUY8	EET CLE	11/01/23 09:05

Lab Chronicle

Client: TRC Environmental Corporation.
Project/Site: CCR DTE Monroe Power Plant FAB

Job ID: 240-194468-2

Client Sample ID: DUP-01

Date Collected: 10/25/23 00:00
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:44
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 12:58
Total/NA	Analysis	9056A		1	593360	JWW	EET CLE	11/05/23 20:34
Total/NA	Analysis	9056A		10	593360	JWW	EET CLE	11/05/23 20:56
Total/NA	Analysis	SM 2540C		1	592988	QUY8	EET CLE	11/01/23 09:05

Client Sample ID: MP-001F

Date Collected: 10/25/23 15:19
Date Received: 10/28/23 08:00

Lab Sample ID: 240-194468-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6010D		1	593041	KLC	EET CLE	11/01/23 14:49
Total Recoverable	Prep	3005A			592866	S4FJ	EET CLE	10/31/23 14:00
Total Recoverable	Analysis	6020B		1	593128	RKT	EET CLE	11/01/23 13:00
Total/NA	Analysis	9056A		1	593360	JWW	EET CLE	11/05/23 11:32
Total/NA	Analysis	9056A		5	593360	JWW	EET CLE	11/05/23 11:54
Total/NA	Analysis	SM 2540C		1	592988	QUY8	EET CLE	11/01/23 09:05

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. Job ID: 240-194468-2
Project/Site: CCR DTE Monroe Power Plant FAB

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
180 S. Van Buren Avenue
Barberton, OH 44203
Phone (330) 497-9396 Phone (330) 497-0772

MICHIGAN
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Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Jacob Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No. 240-112835-40148.1
Client Contact: Jacob Krenz	Phone: 734-395-9809	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested:			
City: Ann Arbor	TAT Requested (days):			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: 199487			
Email: jkrenz@trccompanies.com	WO #: 518728 - See pop up note			
Project Name: CCR DTE Monroe Plant FAB	Project #: 24016830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate	6010B Bo, 6020 Ca, Fe	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D		
MW-16-01	10-25-23	1105	G	Water	N	N	X	X	X		
MW-16-02	10-24-23	1516		Water			X	X	X		
MW-16-03	10-24-23	1438		Water			X	X	X		
MW-16-04	10-24-23	1311		Water			X	X	X		
MW-16-05	10-24-23	1359		Water			X	X	X		
MW-16-06	10-25-23	1430		Water			X	X	X		
MW-16-07	10-25-23	0941		Water			X	X	X		
DUP-01	10-25-23	—		Water			X	X	X		
~~Outfall~~ MP-001F	10-25-23	1519		Water			X	X	X		
				Water							

240-194468 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10-27-23 1445	TRC		10/27/23 1445	FENA
2	Relinquished by:	10/27/23	FENA	Received by:	10-28-23 800	EC
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Eurofins – Cleveland Sample Receipt Form/Narrative
Barberton Facility

Login # : _____

Client TRC Environmental Site Name _____

Cooler unpacked by: [signature]

Cooler Received on 10-28-23 Opened on 10-28-23

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 ☑ See Multiple Cooler Form

IR GUN # 22 (CF 0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 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? ● ← 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

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: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservative Added (mls)	Lot #
MW-16-01	240-194468-C-1	Plastic 250ml - with Sulfuric Acid				
MW-16-01	240-194468-E-1	Plastic 500ml - with Nitric Acid	<2			
MW-16-01	240-194468-F-1	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-02	240-194468-C-2	Plastic 250ml - with Sulfuric Acid				
MW-16-02	240-194468-E-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-02	240-194468-F-2	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-03	240-194468-C-3	Plastic 250ml - with Sulfuric Acid				
MW-16-03	240-194468-E-3	Plastic 500ml - with Nitric Acid	<2			
MW-16-03	240-194468-F-3	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-04	240-194468-C-4	Plastic 250ml - with Sulfuric Acid				
MW-16-04	240-194468-E-4	Plastic 500ml - with Nitric Acid	<2			
MW-16-04	240-194468-F-4	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-05	240-194468-C-5	Plastic 250ml - with Sulfuric Acid				
MW-16-05	240-194468-E-5	Plastic 500ml - with Nitric Acid	<2			
MW-16-05	240-194468-F-5	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-06	240-194468-C-6	Plastic 250ml - with Sulfuric Acid				
MW-16-06	240-194468-E-6	Plastic 500ml - with Nitric Acid	<2			
MW-16-06	240-194468-F-6	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-07	240-194468-C-7	Plastic 250ml - with Sulfuric Acid				
MW-16-07	240-194468-E-7	Plastic 500ml - with Nitric Acid	<2			
MW-16-07	240-194468-F-7	Plastic 500ml - w/ Nitric - Dis.	<2			
DUP-01	240-194468-C-8	Plastic 250ml - with Sulfuric Acid				
DUP-01	240-194468-E-8	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-194468-F-8	Plastic 500ml - w/ Nitric - Dis.	<2			
MP-001F	240-194468-C-9	Plastic 250ml - with Sulfuric Acid				
MP-001F	240-194468-E-9	Plastic 500ml - with Nitric Acid	<2			
MP-001F	240-194468-F-9	Plastic 500ml - w/ Nitric - Dis.	<2			

Login # : ____________

Eurofins - Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC (circled) Client Box Other	IR GUN #: 22	0.3	0.2	Wet Ice (circled) Blue Ice Dry Ice Water None
EC (circled) Client Box Other	IR GUN #: 22	0.6	0.5	Wet Ice (circled) Blue Ice Dry Ice Water None
EC (circled) Client Box Other	IR GUN #: 22	1.8	1.7	Wet Ice (circled) Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None

☐ See Temperature Excursion Form

WI-NC-099 Cooler Receipt Form Page 2 - Multiple Coolers

Eurofins Cleveland
180 S. Van Buren Avenue
Barberton, OH 44203
Phone (330) 497-9396 Phone (330) 497-0772

MICHIGAN
190

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Jacob Krenz	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No. 240-112835-40148.1
Client Contact: Jacob Krenz	Phone: 734-395-9809	E-Mail: Kris.Brooks@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: TRC Environmental Corporation.	PWSID:			Job #:
Address: 1540 Eisenhower Place	Due Date Requested:			
City: Ann Arbor	TAT Requested (days):			
State, Zip: MI, 48108-7080	Compliance Project: Δ Yes Δ No			
Phone: 313-971-7080(Tel) 313-971-9022(Fax)	PO #: 199487			
Email: jkrenz@trccompanies.com	WO #: 518728 - See pop up note			
Project Name: CCR DTE Monroe Plant FAB	Project #: 24016830			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C_Calcd - TDS	9056A_28D - Chloride, Fluoride and Sulfate	6010B Bo, 6020 Ca, Fe	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	D		
MW-16-01	10-25-23	1105	G	Water	W	N	X	X	X		
MW-16-02	10-24-23	1516		Water			X	X	X		
MW-16-03	10-24-23	1438		Water			X	X	X		
MW-16-04	10-24-23	1311		Water			X	X	X		
MW-16-05	10-24-23	1359		Water			X	X	X		
MW-16-06	10-25-23	1430		Water			X	X	X		
MW-16-07	10-25-23	0941		Water			X	X	X		
DUP-01	10-25-23	—		Water			X	X	X		
~~Outfall~~ MP-001F	10-25-23	1519		Water			X	X	X		
				Water							

240-194468 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10-27-23 1445	TRC		10/27/23 1445	FENA
2		10/27/23	FENA		10-28-23 800	EC
3						

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

Ver: 01/16/2019

Eurofins – Cleveland Sample Receipt Form/Narrative
Barberton Facility

Login # : _____

Client TRC Environmental Site Name _____

Cooler unpacked by: [signature]

Cooler Received on 10-28-23 Opened on 10-28-23

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 ☑ See Multiple Cooler Form

IR GUN # 22 (CF 0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 3 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? ● ← 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

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: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Container Temp	Preservative Added (mls)	Lot #
MW-16-01	240-194468-C-1	Plastic 250ml - with Sulfuric Acid				
MW-16-01	240-194468-E-1	Plastic 500ml - with Nitric Acid	<2			
MW-16-01	240-194468-F-1	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-02	240-194468-C-2	Plastic 250ml - with Sulfuric Acid				
MW-16-02	240-194468-E-2	Plastic 500ml - with Nitric Acid	<2			
MW-16-02	240-194468-F-2	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-03	240-194468-C-3	Plastic 250ml - with Sulfuric Acid				
MW-16-03	240-194468-E-3	Plastic 500ml - with Nitric Acid	<2			
MW-16-03	240-194468-F-3	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-04	240-194468-C-4	Plastic 250ml - with Sulfuric Acid				
MW-16-04	240-194468-E-4	Plastic 500ml - with Nitric Acid	<2			
MW-16-04	240-194468-F-4	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-05	240-194468-C-5	Plastic 250ml - with Sulfuric Acid				
MW-16-05	240-194468-E-5	Plastic 500ml - with Nitric Acid	<2			
MW-16-05	240-194468-F-5	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-06	240-194468-C-6	Plastic 250ml - with Sulfuric Acid				
MW-16-06	240-194468-E-6	Plastic 500ml - with Nitric Acid	<2			
MW-16-06	240-194468-F-6	Plastic 500ml - w/ Nitric - Dis.	<2			
MW-16-07	240-194468-C-7	Plastic 250ml - with Sulfuric Acid				
MW-16-07	240-194468-E-7	Plastic 500ml - with Nitric Acid	<2			
MW-16-07	240-194468-F-7	Plastic 500ml - w/ Nitric - Dis.	<2			
DUP-01	240-194468-C-8	Plastic 250ml - with Sulfuric Acid				
DUP-01	240-194468-E-8	Plastic 500ml - with Nitric Acid	<2			
DUP-01	240-194468-F-8	Plastic 500ml - w/ Nitric - Dis.	<2			
MP-001F	240-194468-C-9	Plastic 250ml - with Sulfuric Acid				
MP-001F	240-194468-E-9	Plastic 500ml - with Nitric Acid	<2			
MP-001F	240-194468-F-9	Plastic 500ml - w/ Nitric - Dis.	<2			

Eurofins - Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC Client Box Other	IR GUN #: 22	0.3	0.2	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: 22	0.6	0.5	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: 22	1.8	1.7	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR GUN #: ______			Wet Ice Blue Ice Dry Ice Water None
			☐ See Temperature Excursion Form	

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

Appendix C
Data Quality Reviews

Laboratory Data Quality Review
Groundwater Monitoring Event April 2023
DTE Electric Company Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill (MONPP FAB & VEL)

Groundwater samples were collected by TRC for the April 2023 sampling event. Samples were analyzed for anions, total recoverable metals, and total dissolved solids by Eurofins-Test America Laboratories, Inc. (Test America), located in Barberton, Ohio. The laboratory analytical results are reported in laboratory report 240-183221-1.

During the April 2023 sampling event, a groundwater sample was collected from each of the following wells:

- MW-16-01
- MW-16-02
- MW-16-03
- MW-16-04
- MW-16-05
- MW-16-06
- MW-16-07

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	SW846 9056A
Total Recoverable Boron	SW846 3005A/6010B
Total Recoverable Calcium and Iron	SW846 3005A/6020
Total Dissolved Solids	SM 2540C

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 Methods 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 and equipment blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs). The LCSs are used to assess the accuracy of the analytical method using a clean matrix;
- Data for matrix spike and matrix spike duplicate samples (MS/MSDs), when performed on project samples. The MS/MSDs are used to assess the accuracy and precision of the analytical method using a sample from the dataset;

- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are used to assess the precision of the analytical method using a sample from the dataset;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- 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.

- Appendix III constituents and iron will be utilized for the purposes of a detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.

QA/QC Sample Summary

- An equipment blank was not collected with this dataset.
- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD analyses were performed on samples DUP-01 for chloride, fluoride, and sulfate. The recoveries and relative percent differences (RPDs) were within laboratory control limits.
- Laboratory duplicate analysis was performed for TDS on sample MW-16-04. The RPD met the acceptance criteria.
- DUP-01 corresponds with MW-16-05. The RPDs for calcium, iron, chloride, fluoride, sulfate, and TDS (83.6%, 40%, 92.7%, 89.9%, 121.8%, and 107.7%, respectively) were > 30. Also, the result for boron was <5x the RL in sample MW-16-05 but was >5x the RL in sample DUP-01 and the absolute difference was > the QL. Therefore, the positive results for boron, calcium, iron, chloride, fluoride, sulfate, and TDS should be considered estimated in all groundwater samples in this data set, as summarized in the attached table, Attachment A. There is no impact on the data usability for non-detect results due to this issue.

Attachment A
Summary of Data Non-Conformances for Groundwater Analytical Data
Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill
Monroe, Michigan

Samples	Collection Date	Analyte	Non-Conformance/Issue
MW-16-04	4/6/2023	Boron, Calcium, Chloride, Fluoride, Sulfate, and TDS	Field duplicate variability (relative percent difference or absolute difference above criteria); potential uncertainty exists.
MW-16-01	4/6/2023	Boron, Calcium, Iron, Chloride, Fluoride, Sulfate, and TDS	
MW-16-02	4/6/2023		
MW-16-03	4/6/2023		
MW-16-05	4/6/2023		
MW-16-06	4/6/2023		
MW-16-07	4/6/2023		
DUP-01	4/6/2023		

Field Parameter Data Quality Review
Groundwater Sampling Event June 2023 Verification Resampling
DTE Electric Company Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill (DTE MONPP FAB & VEL)

On June 12, 2023, TRC Environmental Corporation (TRC) collected groundwater parameters at monitoring well MW-16-05 to verify initial pH (field measured) results that were outside of prediction limits during the April 2023 detection monitoring event. Prior to field parameter collection, three well volumes of groundwater were purged and stabilized in accordance with the *Hydrogeological Monitoring Plan for the DTE Electric Company Monroe Power Plant Fly Ash Basin and Vertical Extension Landfill* (TRC, November 2019).

TRC routinely reviews the field parameter data to assess data usability. The following sections summarize the data review procedure and the results of this review.

Data Quality Review Procedure

The following items were included in the evaluation of the field parameter data:

- Review of sonde calibration data;
- Confirm field parameter stabilization criteria were met;
- Compare field parameters to historical data;
- Compare field parameters to prediction limits, and;
- Overall usability of data based on these items.

Findings

The data quality objectives for the project were met and the data are usable. The discussion that follows describes the QA/QC results and evaluation.

- Sonde calibration readings were within the calibration range for all field parameters.
- Field parameters met stabilization criteria for three successive readings.
- Field parameter readings were comparable to historical data.
- Field parameter readings were within prediction limits.
- Data are usable for purposes of verification resampling.

Laboratory Data Quality Review
Groundwater Monitoring Event October 2023
DTE Electric Company Monroe Power Plant Fly Ash Basin (FAB)

Groundwater samples were collected by TRC for the October 2023 sampling event. Samples were analyzed for anions, total metals, and total dissolved solids by Eurofins Environment Testing, located in Barberton, Ohio. The laboratory analytical results are reported in laboratory report 240-194468-2 (Revision 2).

During the October 2023 sampling event, a groundwater sample was collected from each of the following wells:

- MW-16-01
- MW-16-02
- MW-16-03
- MW-16-04
- MW-16-05
- MW-16-06
- MW-16-07

Each sample was analyzed for the following constituents:

Analyte Group	Method
Anions (Chloride, Fluoride, Sulfate)	SW846 9056A
Total Recoverable Boron	SW846 3005A/6010B
Total Recoverable Calcium and Iron	SW846 3005A/6020
Total Dissolved Solids	SM 2540C

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 Methods 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 and equipment blanks, where applicable. Method blanks are used to assess potential contamination arising from laboratory sample preparation and/or analytical procedures. Equipment blanks are used to assess potential contamination arising from field procedures;
- Data for laboratory control samples (LCSs). The LCSs are used to assess the accuracy of the analytical method using a clean matrix;
- Data for matrix spike and matrix spike duplicate samples (MS/MSDs), when performed on project samples. The MS/MSDs are used to assess the accuracy and precision of the analytical method using a sample from the data set;

- Data for laboratory duplicates, when performed on project samples. The laboratory duplicates are used to assess the precision of the analytical method using a sample from the data set;
- Data for blind field duplicates. Field duplicate samples are used to assess variability introduced by the sampling and analytical processes; and
- 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 constituents and iron will be utilized for the purposes of a detection monitoring program.
- Data are usable for the purposes of the detection monitoring program.

QA/QC Sample Summary

- An equipment blank was not collected with this data set.
- Target analytes were not detected in the method blanks.
- LCS recoveries for all target analytes were within laboratory control limits.
- MS/MSD analyses were not performed on a sample from this data set.
- Laboratory duplicate analysis was not performed on a sample from this data set.
- Samples DUP-01 and MW-16-07 were submitted as the field duplicate pair with this data set. All criteria were met.
- Boron was reported at an RL (100 µg/L) lower than required in the QAPP (200 µg/L). Boron was detected in samples MW-16-04 (150 µg/L), MW-16-07 (170 µg/L), and DUP-01 (150 µg/L) below the QAPP-requested RL. There is no impact on the data usability for this issue.